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FRED'K A. CASTLE, M.D.,
LATE PHYSICIAN TO THE PRESBYTERIAN HOSPITAL
EDITOR

CHARLES RICE, PH.D.,
CHEMIST OF THE DEPARTMENT OF PUBLIC CHARITIES AND CORRECTIONS
ASSOCIATE EDITOR

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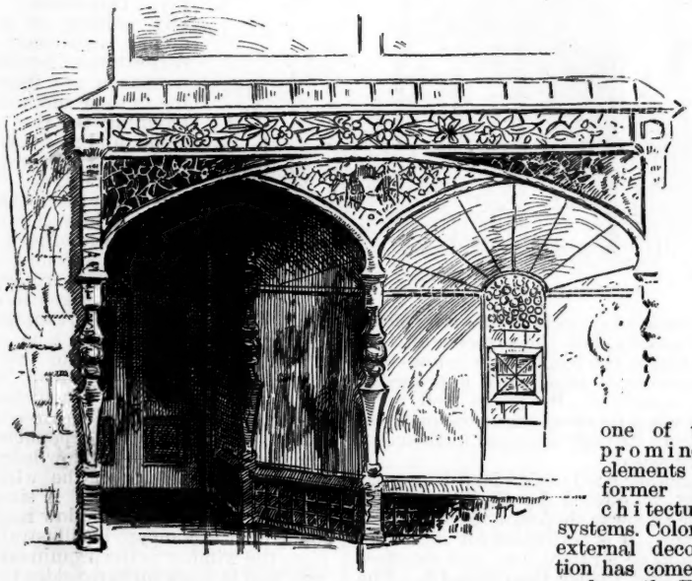
THE ARTISTIC DECORATION OF DRUG-STORES.

[Continued from December, 1884.]

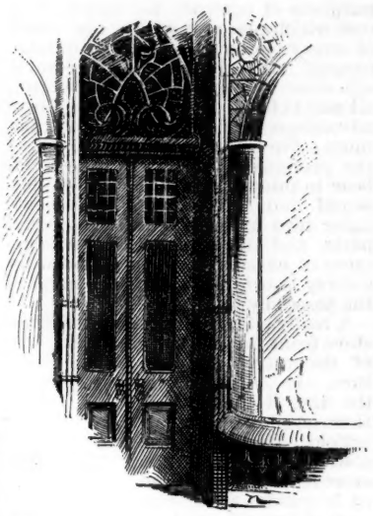
RTISTIC decoration plays an important part in the present age, not only in matters internal, but with regard to aspects that are purely external.

American architecture and architectural aims appear to have blossomed forth into a floridity and passion of ornamentation paralleled only by the conditions of the baroque period of European art. Whether this be a healthy and normal phase of the development of a national architecture is a question which may be discussed at length. A tendency to over-elaboration, excessive attention to detail, and a general lack of singleness and unity of purpose, are apt to be the fatal marks of architectural, as of artistic, decadence. One argument, however, in favor of the present *furore* for ornamental and elaborate design in architecture lies in the existence of a corresponding element in the national life, which is composite, irregular, full of surprises, and largely made up of the odds and ends of older nations both in the human and artistic relations. From the mansion, literally a republican palace, of the millionaire on the Fifth Avenue, down to the small shop on the obscure side-street, we see the present rage for decorative architecture exemplified at every turn. The millionaire's house is, superficially, a mass of elaborate stone carving, of jewelled glass, of wrought iron and of other precious and artistically treated substances. In almost every house or shop erected or remodelled during the last ten years, we find some element or other of architectural external decoration. Nearly all the shops along the main thoroughfares of New York show traces of the passage of the architectural art-idea in the presence of terra cotta plaques, friezes of wrought iron, panels of colored or jewelled glass, and similar adornments. Business enterprise causes the owners and lessees of these shops to keenly realize the truth that they must keep abreast with the times, must hold their own with the rest of the world, or be swept from their footing by the strong current of competition. Any one who compares the present aspect of the fashionable business streets of New York with that presented by them a few years back, cannot fail to perceive their gain in brilliancy and attractiveness, through the application of the decorative principle in architecture to the construction of shop-fronts. The results may not always be in the purest taste, but they offer an appropriate background for the brilliant many-sided life of the cosmopolitan American city. The American love of color, which reveals itself in so many different ways in the streets of our large cities, is strongly felt in the architectural decoration of the shop-fronts. The idea of color in architecture is part of the contemporary American art revival, and is directly opposed to the severity of the constructive principles of our earlier national period. None the less was it

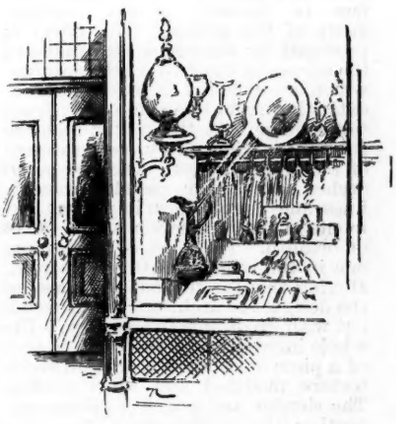


one of the prominent elements of former architectural systems. Color in external decoration has come to us from the East by way of the mediæval Italian cities. It is part of the audacity of the American character that it should thus boldly revive and appropriate to its own use the almost practically forgotten conditions of past civilizations, completely reconciling them with its own climatic and social conditions. Any one who takes the trouble to stroll past the lines of shops on the fashionable highways of New York, can soon assure himself of the fact that the tendency of the day in the matter of shop-front architecture is Oriental, in various phases and modifications, such as the Byzantine and the Moorish. This is the case as regards both form and color. It is not a substantial style of architecture in regard to outward effect. It is light, airy and graceful, at once delicate and brilliant. It composes admirably with the colors of the different goods exposed for sale in the windows. It is just fantastic and capricious enough to form an appropriate setting for the constantly varying display inclosed within its symmetrical, feminine lines and curves.

This kind of architecture is eminently adapted to drug-store fronts, from the dual standpoint of objective decoration and artistic significance. The modern pharmaceutist occupies



the place of the wise man of the East, who dealt in magical herbs and simples, and wrought enchantments by means of rare and precious drugs. The small broken lines and curves, the dashes of color, which enter into the architectural scheme, are in direct artistic relation with the interior decoration of the windows under favorable conditions. As matters stand, however, the druggists of our large cities—such as New York, apparently do not show the same enterprise in modernizing their shop-fronts to meet the requirements of the contemporary idea



of architectural decoration, as do their neighbors in other lines of trade. Here, again, as in the matter of window-arrangement, the druggist appears to feel that his business can be successfully carried on purely on the basis of its intrinsic necessity to the community. This is a fatal mistake. The eye and the artistic sense of that same community must be appealed to by every one who seeks to please a fastidious public, such as the population of a large city. In treating the front of a drug-store, which is to be entirely or partly remodelled, the conditions of size, position, and relation with other shops and buildings should be considered. It would be well if the druggist should be able to tower head

and shoulders above his neighbors in the matter of artistic effect. The drug-store should be the nucleus of the artistic decoration of an entire neighborhood. Why should the architecture of the drug-store be less attractive than that of the fancy goods bazaar or the lager-beer saloon? One would fancy that professional pride would be a sufficiently powerful motive force to keep the druggist's ambition in this respect up to the proper mark.

At the present time, the resources of decorative architecture appear to be almost inexhaustible. Every season brings some new material into use for purposes of external decoration, at a cost which places it within the reach of every one who is able to indulge himself at all with architectural schemes. The problem of presenting all parts of the shop-front to the best advantage is one that every druggist must solve for himself with the aid of the professional architect. He must bear in mind the fact that the professional and the commercial elements enter into his calling in about equal parts, and the architectural arrangement of his shop-front must instantly convey that impression to the mind of the passer-by.

A really admirable design for a drug-store front, in the most modern vein of decorative architecture, is afforded by the first of the illustrations accompanying this article. Here we have a striking instance of a store-front so designed as to present an appearance of breadth, and using every inch of latitudinal space to the best possible advantage. The window on the right, the window within the arch, and the door, are on three different planes. The inner window again is divided into two parts, forming an obtuse angle. By this arrangement the window space is applied judiciously, and the objects exhibited are seen under the most favorable circumstances, with effects of cross-lights, bringing out their strongest points of color and form. What adds still more to the valuable effect of breadth is the arrangement of the arches. This effect is produced by dexterous treatment of the curves of the two window arches, which are included in one wide arch, extending from one side of the front to the other. At the ground-line, the entrance is widened by the treatment of the inner window. The low, broad arches with their pseudo-Saracenic lines and curves form important elements in the production of the effect of breadth. This idea is the leading one in the scheme of the shop-front. Having this for the main purpose of the design, the architect has carried it out with creditable consistency. The whole impression of the work is that of a piece of composite oriental architecture modified and Americanized. The slender and graceful pillars supporting the arches have the same Moorish character as the wide, lightly springing arches themselves. The oriental element of color and the short, fantastic lines and forms peculiar to the East, are found repeated throughout the scheme. The setting of the glass panes under the arch of the window on the right, in wheel form, with their lines converging to the upright panel in the middle, is singularly harmonious. This panel, with its heading of jewelled glass, and its small colored panes of the same material, carries out the chromatic idea to advantage. The space in the middle of the front above the central pillar and the roots of the two inner arches are filled in with ornamental glass, consistent in design and arrangement with the general character of the architecture. The spaces above the slopes of the wide arch on either side contain lattice work, which may be either of iron or copper, or may be solid in character and composed of any of the various materials supplied for architectural decoration. Terra cotta plaques, in designs suitable to the pharmaceutical profession, might be introduced here with good effect. The corona above may be elaborately carved, modelled, or wrought in wood, iron, or terra cotta. The original shown in the illustration is designed in vines, flowers, and leaves. This illustration offers a very fair example of the kind of architectural decoration in vogue throughout America at the present time for shop-fronts. It is among the best of its kind, although that kind may not be in the very purest vein. Any druggist who models his shop-front after this illustration, or gathers from it hints as to general arrangement or details of color and form, may be sure of being on the right road unless the entire nation be on the wrong one. A front designed after this illustration, with its windows filled with artistically arranged goods, would present an admirable pictorial aspect, which would attract unusual attention from its happy combinations of form and color. One characteristic

of this kind of architecture is its pictorial quality, and the presence of this quality in the front and windows of a drug-store is artistically appropriate and desirable. It speaks well for a city when its streets have the pictorial element strongly accented in their outward aspect.

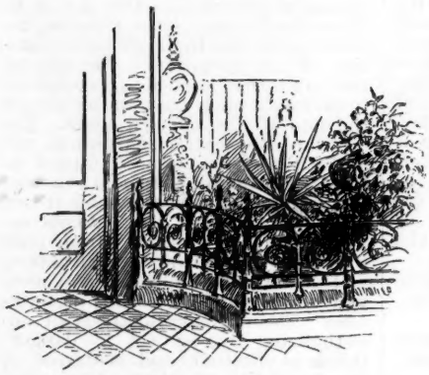
Another good design for a drug-store front is offered by the illustration which shows a shop situated at a street-corner. It is noticeable for its combinations of straight lines and its effect of height rather than breadth. The windows are very well arranged, having three sides facing the street at different angles. The architect has evidently borne in mind the position of the store, and has consistently adapted his scheme to its requirements. It is not as ornamental and florid a piece of architecture as the first design, but many persons will find it of more practical value as a model for a city drug-store. The upper part of the windows is filled in with those small panes of glass so much affected by contemporary American architects and decorators. They are nothing more than a modified revival of the old colonial fashion of limiting window-panes to a certain size, in order not to incur the tax imposed upon all panes above prescribed dimensions. It has now become one of the conceits of an age of artistic and architectural adornment, and answers a minor decorative purpose sufficiently well. In this design, the number of the street is conspicuously displayed on a glass disc in the upper part of the window in a fashion which is at once decorative and practically useful. The sweep of archway in this illustration is effective and imposing, and as a whole, the model recommends itself as one well adapted to the ordinary conditions of the retail drug trade. The searching light to which a corner drug-store is exposed demands that all the details of ornament shall be treated with great care, and that no artistic subterfuges shall be employed. It is always desirable that architectural ornament, of whatever character it may be, should be solid. Imitative substances should never be used. They are in bad taste and in bad economy. Better a little intrinsic ornament to relieve the bareness of a shop-front than a mass of ginger-bread imitations of some expensive material.

The illustration showing a high and narrow door with part of the arches on either side, is quite stately and palatial in effect. It is particularly suitable for a store on the ground floor of some large and highly decorated building, such as the new hotels and apartment-houses at New York. The lines and curves of the architecture are of the most dignified kind, though very far removed from anything like pretension. Everything about this design is solid and substantial. The effect of the whole is that of massive elegance. The long middle panels are composed of ornamental glass of excellent quality and good artistic effect. The small open lattices above these panels are of wrought iron. They might be made with equal propriety of copper. This metal is rapidly gaining in favor among architects and decorators as American workmen are improving in their methods of handling the raw material, and more of it is finding its way into the industrial market. The space over the door may be filled in either with leaded glass of rich and harmonious colors, with ornamental ironwork, or with designs in copper. Copper has the advantage of adding color, warmth of tone, and effects of reflected light to the architectural schemes in which it is employed, and for the reason that it is in many ways more decorative than iron, it rivals with it in popularity. The space under the window ledge at the right-hand corner of the window is filled in with ironwork. A simpler design for a door and window may be found in an accompanying illustration. Here the window is the prominent object, and is open on three sides to the street. The architectural scheme is consistently composed of straight lines and angles. The effect is more severe than with such designs as offer combinations of curves and waved lines, but its simplicity and sobriety of treatment are very pleasing, and it is less likely to go out of architectural fashion than some of the more elaborate and modish designs. The advantage of this plan lies in the width and depth of the window which gives opportunities for the advantageous display of goods. As a model of solid, sensible architecture, it combines good taste with effectiveness. The arrangement of goods in the window should harmonize in composition of lines and masses with the character of the external architecture, as it does in the illustration. A peculiarity of this design is the shelf surmounting the rod which supports the curtain in the back-ground.

A more or less difficult architectural problem is always presented by a corner drug-store. A symmetrical and artistic bit of architecture is found in

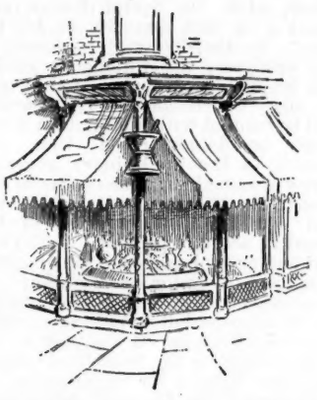
the illustration in which the corner is so handled that there are no positive angles presented, and the outline rounds itself into the suggestion of a semi-circle. The large gilded mortar, emblematic of the pharmaceutical profession, is here used in a decorative manner to define the position of the virtual corner of the street. The awnings curve away from this central point after the graceful fashion of Arab tents. There is something particularly pleasing about the composition of line shown in this design. It is far from weak or insipid, and it is noticeable for the absence of finical ornament. The panels of lattice-work inserted in the lower part of the windows are in complete harmony with the upper part of the design. As for color and light, the gilded mortar concentrates the rays of the sun and sends them playing over the brilliant goods in the window when the awnings are drawn up. When they are down they form of themselves desirable masses of color. The practical value of such a front lies in the unusually fine effect offered by the sweep of vision. The whole interior of the window is revealed to the passer-by at a glance. With such a front as this, spherical goods and accessories forming graceful curves would be particularly appropriate as window decorations.

It frequently happens that the position of a drug-store is such that outside the window or the front there remains a vacant space of ground which properly belongs to the store. It is an excellent plan to fill in this space with ornamental shrubs or



plants growing in the stone or metallic urns sold for the purpose. A handsome railing should extend about the window or front. Wrought iron of elaborate design used in this way would give a sumptuous look to any drug-store front. A very artistic example of such an arrangement is offered by an accompanying illustration than which nothing could be more decorative nor in more correct taste, the scrolls of the iron-work well harmonizing with the lines and curves of the plants and the goods in the window. A simpler design of the same kind has a plain brass railing and an urn filled with growing plants at the right-hand corner. The window decoration in this illustration offers excellent suggestions. We will imagine a large antique brass lamp, such as one sees in studios and *bric à brac* shops, suspended from above by a brass chain. Curtains of yellow India silk fall in long folds on either side. If a few yellow flowers of the hardy decorative varieties, such as wall flowers, careopses or chrysanthemums should appear among the mass of green vines or large leaves, the artistic quality of the effect would be greatly increased. Flowers and shrubs are as valuable for external accessories of drug-stores as for internal.

An original and practical idea is that illustrated by the design of the initial letter—a sort of lantern window projecting from a wall with the double intention of affording a decoration and of attracting attention from a distance, on either side, by its projection beyond the line of the wall. It is especially adapted for the side of a corner store, in which the show-window on the front is hardly to be seen by persons approaching from the street. It is just large enough to con-



tain a colored jar and a gas-jet covered with a globe, and its position above the heads of the pedestrians makes of it a kind of guiding star to those coming from a distance at night. It will bear considerable ornament and forms an excellent decoration, both artistically and from the stand-point of significance, for a drug-store front.

[To be continued.]

Use of Boric Acid for Preserving Food.

FROM a series of experiments made with a view to determine the action of boric acid on the animal system, the author draws the following conclusions. The admission of boric acid as addition to food, even in very small doses, is injurious to the digestive organs. This injurious action depends on the circumstance that boric acid acts so as to materially increase the proportion of solid matters and nitrogen in the fæces separated. It is also a remarkable coincidence, that the action of boric acid on the intestinal discharge is well-marked, even by the exhibition of so little as 0.5 gramme per diem. Moreover, this action is in direct relation to the quantity of acid taken and is maintained for some time. The action described is perceptible, not only with vegetable or animal foods, which contain a large proportion of indigestible ingredients, but also when highly digestible food, such as milk and eggs, is taken. Food to which boric acid has been added tends to cause an increase in the secretion of gall during assimilation. Its most important action, however, is the increase which it causes in the discharge of albuminous substances from the intestinal canal. It is evident that its use as a food preservative is not as beneficial as hitherto assumed.—J. FORSTER, *Dingl. Pol. J.* and *J. Chem. Soc.*

Secure Corks.

TIGHT-closing corks may be obtained by soaking good corks for several hours in a warm (about 50° C. or 122° F.) solution of 15 parts of glue or gelatin in a mixture of 24 parts of glycerin, and 500 parts of water. These corks may be made still more proof against acids, by dipping them, after being completely dried, for about ten or fifteen minutes in a warm mixture of 4 parts of paraffin, and 1 part of vaseline.—*Polyt. Mittheil.*

[ORIGINAL COMMUNICATION.]

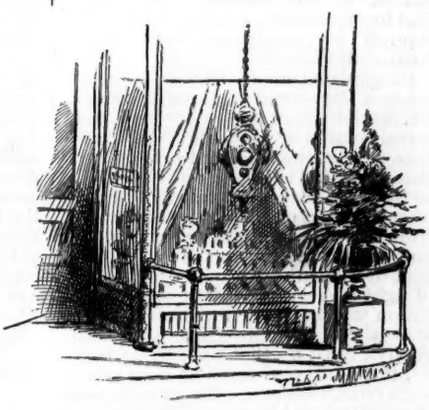
EXTRACT OF CANNABIS INDICA.

BY HENRY MACLAGAN.

SINCE the publication by the writer, in the AMERICAN DRUGGIST for July, of an article on copper as the source of the color of this extract, two criticisms have appeared, one by the editor of the Chicago *Pharmacist*, and one by Dr. E. R. Squibb, of Brooklyn, published in his *Ephemeris*. As the latter statement effectually controverts that of the *Pharmacist*, it will be necessary to reply to Dr. Squibb only.

It should be here stated that it was not intended in the original article that the idea should be conveyed that copper was present in harmful quantity, as Dr. Squibb assumes; the amount of metal present and the smallness of the dose of the extract, should have precluded such a supposition. The object was to point out the fact that the usual dark, rich green color of the extract was not natural, and, incidentally, the objection to the use of copper vessels in making such preparations.

Dr. Squibb concedes the presence of copper in his extract, but claims to have *found* a much smaller quantity than the writer has stated, and with this exception, if due allowance be made for the fact that the doctor is to a certain extent acting upon the defensive, he practically admits the truth of the statement that "the dark-green color characteristic of most



samples is not natural," although he ingeniously endeavors by argument to have it appear otherwise. He says that an "experimental" extract made without contact with copper was precisely like his "stock" extract when *viewed in mass*, but "at the thin edges against the porcelain, there was a distinct difference in color, the experimental extract being still green and not brown, but with a yellower or *browner* tinge." The comparison in *mass* is hardly fair, as any two dark-colored extracts will look alike under such circumstances, and it is *only* in thin layers that a comparison *can* be properly made, and the true color ascertained. Very few pharmacists, it is thought, will agree with Dr. Squibb that the "non-coppered" extract *is* green, and luckily there happens to be a very easy way for those interested to judge the case for themselves. Dr. Squibb's *fluid* extract is made by repercolation, without contact with copper, and represents an equivalent quantity of *good* Cannabis tops. Let any one evaporate an ounce or so of this in porcelain, at say 150° F., with a "partial exclusion of light," and with a total exclusion of prejudice judge the color by smearing a little of the extract on white paper. Of course, different persons in describing an indefinite color such as this is, would probably vary somewhat in their judgment, but whatever color may be finally settled upon, it is not possible

that extract of Canabis *free from copper* can ever be described as a purely green extract, and such Dr. Squibb's and others certainly are. It may have been an error to call the color "brownish-black with scarce a tinge of green," but if so, the German Pharmacopœia is also wrong, as that authority states that the extract is "dark-brown."

The writer did *not* "overlook the fact that a drug containing a *large* quantity of green chlorophyll *might* yield to a good solvent a green extract." This can only be the case where the chlorophyll is in *good* quantity, and the other extractive matters are *lighter than it in color.* Dark colors neutralize or swallow up lighter ones, and the modifying influence of either must always be in proportion to its intensity. According to Dr. Squibb's "fact," all extracts from leaves or leafy plants should be green, while very many are not so, and it is not always because the chlorophyll is altered or destroyed in the process of manufacture; it is probably still present, but it is neutralized and overcome by the darker extractive matter taken up by the solvent. Many such extracts still retain a "suggestion" of greenish color, some more and some less, according to the relative proportion of the coloring principles. Extract of Cannabis being made from a leafy plant, of course contains the usual proportion of chlorophyll, but the blackish resinous extractive matter is so much greater in quantity and more intense in color that the green is almost if not entirely obliterated. The brown extract readily yields chlorophyll by treatment with warm hydrochloric acid.

In explanation of the deep green color of the extract containing copper, Dr. Squibb offers the theory that that metal retards or prevents the destruction of the chlorophyll by heat, and therefore that the color is due entirely to that substance. To test the correctness of this, a quantity of extract free from copper was dissolved in alcohol, and evaporated in porcelain at the full heat of a steam-bath with free access of light and air. Solution and evaporation was repeated ten times, and it was then thought that the chlorophyll must by that time be destroyed, if it is injured at all by heat under such circumstances. The extract was then brownish-black as originally, and was redissolved in alcohol and evaporated in a *copper* vessel. The color quickly changed to green, and the finished product had the *usual* dark-green color; thus showing that this color was *not* due to chlorophyll, if that substance is so easily destroyed by heat, as has been assumed.

In the course of these experiments it was found that the *solid* extract had very little effect on copper in the absence of alcohol. Some brown extract was heated in a copper vessel for several days, with but little if any change of color; it was then dissolved in alcohol and evaporated in the same vessel, with the usual green extract resulting. Whether the alcohol as such has any effect, or whether the increased activity is due to greater fluidity cannot yet be stated.

In the original article it was stated that contact with copper rendered a portion of the extract insoluble in alcohol, and it was surmised that prolonged contact would probably bring the whole into that condition. Subsequent experiments have to a certain extent verified the opinion. A moderately weak tincture of the brown extract was placed in a bottle with a few strips of copper, and shaken; in a short time the color of the tincture had become a beautiful green, but, on standing, this color gradually faded, and after the lapse of three weeks, there was a large green deposit in the bottle, and the supernatant liquor was about the color of sherry wine; this on evaporation left a very light-brown resinous residue. The exact nature of this change has not yet been determined, but the fact is clearly indicated that this extract has a strong affinity for copper.

Now as to the quantity of copper present in commercial extracts of Cannabis, the writer gave it as ¼ of one per cent, or about one grain in each ounce, while Dr. Squibb found only about ¼ of that quantity in his extract. As the doctor gives details of his analyses, the intelligent reader will be enabled to judge of the value of his conclusions. The writer will be content with stating that it can easily be demonstrated that Dr. Squibb, in the preliminary analysis, threw away about nine-tenths of the copper (in the resinous precipitate), and found about one-tenth of the quantity actually present. In the second and crucial analysis, the quantity of extract taken for examination (1.85 grammes or 29 grains) was altogether too small, especially where there existed a disinclination on the part of the analyst to go to the trouble of preparing a fine balance for weighing the result, which would only have been about three milligrammes, or $\frac{1}{20}$ grain, if ¼ of one per cent were present.

The writer has examined many samples of extract of Cannabis, and with practically uniform results; below are given those obtained from Dr. Squibb's: in each case about ten grammes (10.00) were incinerated, and the ash treated with hydrochloric acid, the solution diluted with water and filtered. Some of the estimations were then made by reduction with zinc, the copper resulting being treated with ferric chloride, and titrated with potassium permanganate; others were made with hydrogen sulphide, the cupric sulphide being washed with sulphuretted hydrogen water, dried, and ignited with sulphur in a current of hydrogen. About 20 C.c. of liquid resulted from the solution of the ash, and in *each case* was of a decidedly bluish tint, the presence of copper being actually apparent to the eye.

10.54 grammes extract with zinc gave 0.028 Cu; this with Fe_2Cl_6, etc., 0.029.

10.20 grammes extract with zinc gave 0.285 Cu; this with Fe_2Cl_6, etc., 0.029.

10.00 grammes extract with zinc gave 0.026 Cu; this with Fe_2Cl_6, etc., 0.258.

10.68 grammes extract with H_2S gave 0.035 Cu_2S, equal to Cu 0.028.

12.07 grammes extract with H_2S gave 0.0436 Cu_2S, equal to Cu 0.0349.

11.80 grammes extract with H_2S gave 0.040 Cu_2S, equal to Cu 0.032.

The extracts of other makers yielded results very similar to the above.

In conclusion, is not Dr. Squibb somewhat inconsistent in saying that the original paper "has done harm instead of the good it was intended to do," and in almost the same sentence announcing his intention of improving his own extract by reducing the amount of copper in it, or perhaps, excluding it altogether? The latter can be easily accomplished, and when it is, at least one brand of extract in the market will have lost its old, familiar features.

NEW YORK, Dec., 1884.

Idunium.

THIS is the name proposed by Professor Websky for a supposed new metal discovered by him in native vanadate of lead. Idunium is reported to resemble vanadium in several respects, both physically and chemically, and to form an oxide having acid properties analogous to vanadic acid, of the probable composition Id_2O_5.

Removal of Copper from Extracts and other Pharmaceutical Preparations.

G. NATTIER is one of several recent writers, who draw attention of copper in certain pharmaceutical preparations which have been made in copper vessels, or have in some manner come in contact with copper. A paper on this subject by J. Rutherford Hill, was read at the late British Pharm. Conference, and the late discussion on the presence of copper in extract of Cannabis Indica will be in the reader's memory.

G. Nattier proposes to remove the copper, which may exist in any such preparation, by the well-known method of electrolysis. The preparation must of course be sufficiently diluted, otherwise the current will not be able to accomplish the object. A feeble current only should be passed; the negative pole, where the dissolved copper will be deposited, should have a large surface and may itself be of bright copper.

When thus operating, the current must not be interrupted, while the negative pole is lifted out of the liquid; otherwise a portion of the copper might be redissolved.

Cannabis Indica as a Local Anæsthetic.

A. AARONSON writes, in the *British Journal of Dental Science* (November 1st), that tincture of Cannabis Indica as a local anæsthetic is perfectly satisfactory. He has extracted with its aid as many as twenty-two teeth and stumps at one sitting. His plan is to dilute the tincture some three or five times, according to the probable duration of the operation. The diluted tincture is then applied in cotton wool to cavities, if such exist, and also about the gums of the affected teeth. The beaks of the extracting forceps are also, after being warmed, dipped in the diluted tincture. In cold weather, it is wise to dilute the Cannabis Indica with warm water. His patients acknowledge the immunity from pain they enjoyed during the extraction, and all expressed surprise and pleasure at the simplicity of the performance. The ordinary methods of anæsthetizing are subject to danger; this is as effectual, and is devoid of the possibility of harm.—*Chem. and Drugg.*

"Putz-Pomade for Metals."

A RECENT formula is as follows: Reduce 100 parts of cocoanut-oil soap to fine shavings and mix it with enough water, at a gentle heat, to produce a thick paste. Also triturate 10 parts of rotten stone with a sufficient quantity of water to produce a smooth paste, and mix with this 3 parts of carbonate of ammonium. Finally incorporate this mixture with the soap-paste, after it has become cold. The product should be kept in stone-pots secured with bladder or parchment.

Mode of applying Chrysarobin in Eczema.

AUSPITZ has found that the best method of applying chrysarobin (so-called chrysophanic acid) in eczema is by the intervention of solution of gutta-percha (Liquor Gutta-perchæ U. S. Ph., a solution of gutta-percha in chloroform), once known under the name of traumaticine or chloropercha. He dissolves one part each of chrysarobin and of gutta-percha in eight parts of chloroform.

Besnier prefers first applying a solution of the chrysarobin in the chloroform, and covering this with a varnish of the gutta-percha solution.—*Chem. and Drugg.*

THE KOLA-NUT.

THE recent discovery of the anæsthetic action of cocaine has led several investigators to examine the therapeutic effects of certain allied substances which have been known to be used for assuaging hunger, and for bearing protracted fatigue. The principal one of these is caffeine (in coffee or tea); others are guaranine and theobromine. It has, however, been ascertained, at least in the case of caffeine, that it does not share the peculiar property of cocaine of acting as a local anæsthetic, but, on the contrary, is a local irritant. Nevertheless, experiments are being continued with the various drugs yielding these principles, and among them the kola-nut has attracted attention because it has long been known to be used, by the natives in a portion of Western Africa, for precisely the same purposes as coca is used by the mountaineers of the Andes. We have

received a number of inquiries on the subject, and though we have once published an account of the plant yielding the kola-nut (NEW REM., 1881, p. 34), we think it will interest many of our readers if we supplement the information, there given, by some further details which we take from a paper by H. Zohlenhofer (in *Arch. d. Pharm.*, 222, 334):

Palisot-Beauvois, in his Flore d'Oware, relates that the negroes of Oware eat the kola-nuts chiefly because they have the remarkable property, after having been chewed, of imparting a pleasant taste to all subsequent food or drink, particularly to water. The effect lasts only while the interior of the mouth is lined with the magma.

The fresh seeds of the kola are much more bitter than the dry, which is probably owing to the loss of some volatile principle lost on drying. This explains why the negroes do not care for the dried seeds, but always prefer them fresh.

Prax (in "Commerce de l'Algérie avec la Mecque et le Soudan." Paris, 1849, p. 19) says:

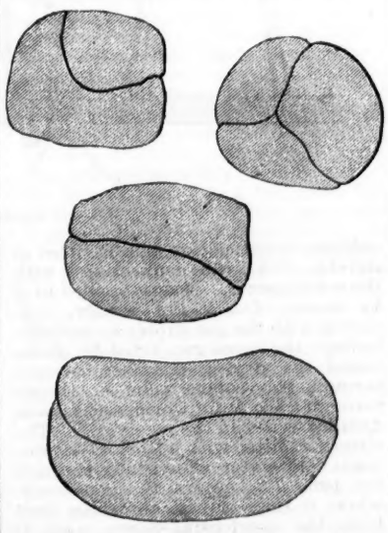
The merchants first strip the seeds completely from the envelope, and wrap them afterwards in large leaves taken from various Sterculiaceæ (to which family the kola-nut belongs). They are then packed in large baskets, called *uagha* which are formed in this manner: four pieces of flexible wood are tied together cross-wise, so that each two of them have the shape of a horse-shoe, and this frame is covered with a piece of tanned ox-hide. The basket being filled with the seeds, a four-times folded sack gherara is laid on top and tied to the four pieces of wood.

Every month the seeds are washed with fresh water, and covered with new leaves; in this way they are said to keep for eight or ten months.

Heckel and Schlagdenhauffen have found the seeds to contain 2.35% of caffeine and 0.02% of theobromine.

The fruit of the kola-tree (*Sterculia acuminata* Sch. and Endl.) consists of a chestnut-brown pericarp, covered with a dry skin, and inclosing two to ten seeds. It has (at least the specimen accessible to Mr. Zohlenhofer had) about the shape of a flattened egg, is nine cm. long, five cm. broad, and three cm. high. At one end is seen the place where the stalk has been broken off, the other end send in a short beak.

The fresh seeds consist of two to three cotyledons, externally purple and internally rose-color to bright

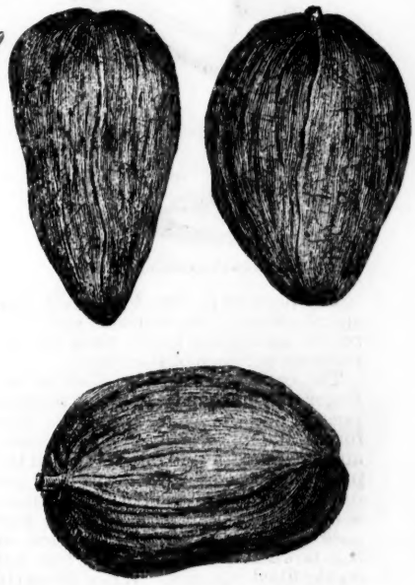


purple. The edges of the cotyledons appear slightly swollen. The size of the cotyledons varies greatly; sometimes one is so small that it lies in a cavity inside another. The whole surface is traversed by fine wrinkles, which disappear, however, completely on drying. The embryo is anatropous and comparatively small. In consistence, the seed may be compared to that of a chestnut. The taste is similar to that of the coffee-bean.

Zohlenhofer's experiments confirm the statement made by others that the chewing of the seed makes drinking-water, even when comparatively impure or stale, quite palatable.

Mustard Paper.

MR. GEORGE MCDONALD, of Kalamazoo, Mich., in a paper read at the late meeting of the Michigan Pharmaceutical Association, states that the formula given by the Pharmacopœia does not seem to work well, since the mixture of powdered mustard (deprived of oil) and of solution of gutta-percha cannot be applied to the paper with a *brush*. He finds that the mass follows the brush and refuses to adhere to the paper. If, however, a common 8 inch spatula be used for applying



the mass, a tolerable degree of success is obtained. He also draws attention to the different features otherwise presented by the article as put on the market by manufacturers and that made by the officinal formula. The commercial article is on *soft*, unsized paper, and, therefore, soft and pliable, while the officinal is on stiff and sized paper. When the latter is dipped into water it does not retain enough moisture to produce the "oil of mustard" rapidly enough, while the soft, unsized paper certainly has this advantage.

The author also tried other solvents than that recommended by the Pharmacopœia for mixing with the powdered mustard, and obtained better results from a solution of one drachm of gutta-percha in ten fluidrachms of coal-tar benzol, than from any other.—After *The Druggist.*

Sodium Borobenzoate.

MR. THOS. S. WIEGAND, of Philadelphia, having had occasional prescriptions for borobenzoate of sodium, he obtained the following formulæ from friends who had used them.

1. For making the salt
   Borate of Sodium.....3 oz.
   Benzoate of Sodium.....4 "
   Water, enough to dissolve.

Dissolve the salts in the water and evaporate, with constant stirring, to dryness. One-sixth of the above proportions yield one ounce.

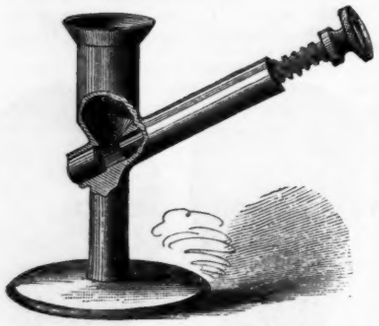
2. To a hot solution of borax add benzoic acid sufficient to saturate it, and evaporate to dryness. This formula seems preferable.

The salt is prescribed in 12 to 15 grain doses given with tonics.—*Am. Journ. Pharm.*

CAPSULE MACHINE.

THE engraving shows a machine recently invented by Mr. I. Strickler, of 297 Main street, Poughkeepsie, N. Y., for filling gelatin capsules with quinine or other dry medicinal powders.

The powder passes from the hopper into the filling tube, placed transversely below the hopper and inclined to the horizon, to facilitate the fall of the powder toward the end of the tube in which the capsule is held. The plunger works within the filling tube from its back end. There is a bottom on the back end of the plunger for forcing it forward, the motion being arrested by a collar striking the the back end of the tube.



Strickler's capsuling machine.

The plunger is forced outward by a spiral spring. The capsule rests in a recess somewhat larger than the remaining portions of the tube.

The capsule is held in place by the finger of one hand, and the plunger pressed down by the other. This forces the powder into the capsule, and the operation is repeated until the proper amount of powder has been put in. The forward end of the plunger is made slightly concave, for the purpose of leaving a convex surface on the powder, to fit the cap when put on the filled capsules. When properly filled, the capsule may be expelled by pressing the plunger inward to its full extent. The return spring motion of the filter gives it an easy and quick filling action, and as the plunger passes beneath the hopper, there is no liability of the powder clogging.—*Scient. Amer.*

The Dermatic Effects of Antipyrin.

A LATELY published paper by Dr. A. Cahn, the assistant of Prof. Kussmaul, of Strassburg, points out the fact that antipyrin stands in a closer therapeutic relationship to quinine than kairin, both by its more analogous effect upon the temperature and the excretion of urine, but also by its sometimes producing the same kind of eruption of the skin. In the case of a typhoid patient, after 675 grains of antipyrin had been administered, there appeared, on the 20th day, an erythematous eruption, unaccompanied by any subjective symptoms. This eruption showed itself as round, bright red, and slightly elevated spots disappearing entirely on pressure; the edges were somewhat indistinct, and the size of the spots varied from ½ to 2 millimeters. Upon the elbow and patella they formed large confluent patches of a bright-red color, and here hardly any normal skin was visible. The eruption was more profuse over the anterior surfaces of the extremities than over the posterior; more profuse over the back than over the chest and abdomen. On discontinuing the antipyrin the eruption disappeared on the following day. At 2 P.M. and at 3 P.M. of the latter, the patient received again 30 grains of the drug, when the eruption reappeared at 6 P.M. on the fore-arms, and in the course of half an hour it had spread over the legs, arms, back, chest, and neck.

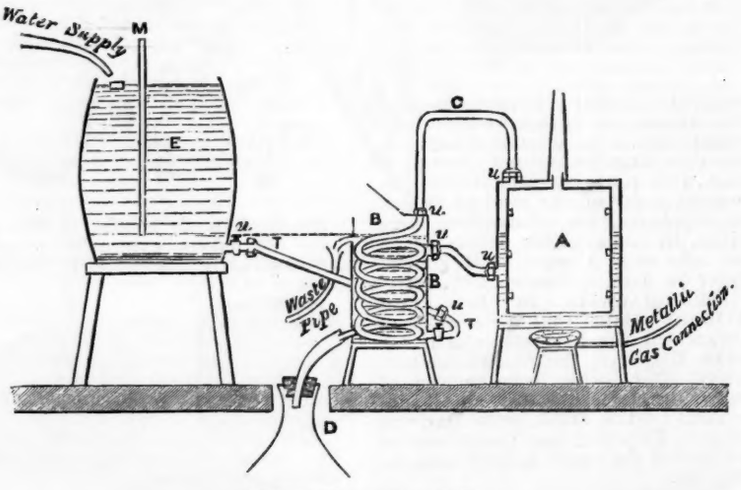
In a short time the extensor surfaces of the fore-arms and knees were covered with a bright-red, scarlatina-like, confluent eruption, while the rest of the body was thickly covered with red spots. This time the patient felt a slight sensation of warmth in the larger patches, and this was proved by the surface; the thermometer showed that the temperature of the congested spots was higher, especially the skin over the patella, which was 2.7° F. higher than the skin of the inner side of the thigh. The next day the eruption had disappeared, but could be at any time re-excited by a fresh dose of antipyrin.

It follows that antipyrin is capable of producing erythema under certain conditions, yet there are no subjective symptoms noticeable which could be construed as alarming. In fact, only by a persistent continuance of the drug do these symptoms become disagreeable. The simple remedy, therefore, when this eruption makes its appearance, is to stop the use of the drug for a while. But even this is not absolutely necessary, as subsequent observations of Dr. Cahn and other authorities in cases of typhoid fever have shown that, in spite of the eruption, the remedy may be continued without unpleasant effects.*

* Abstract from a circular furnished by Messrs. Lutz & Movius, 15 Warren street, New York, the sole agents of the manufacturers of antipyrin in the United States.

A CONSTANT LEVEL STEAM-OVEN AND STILL.

THE accompanying sketch of a combined steam-oven and distilled water apparatus, so arranged as to be left to itself for a long period of time without the risk of the boiler going dry, may perhaps be of interest to many chemists, and it is hoped that a few words only will be necessary to describe its working. The steam-oven *A* is of the ordinary construction, but is fitted at the side with a tube connecting it with the condenser *B*. Heat is applied to *A* by means of a radial burner, connected with the gas supply by metallic tubing; the steam generated circulates round the drying chamber, escapes through the copper tube *C*, thence through a block tin worm, and falls as distilled water in the receiver *D*. The cistern *E*, fitted with a Mariotte's tube, holds cold water which falls through the tube *TT*, enters the condenser, where it rises slowly, absorbing heat from the condensing-worm, until it reaches the tube leading to the boiler at a high temperature. For a cistern, an 18-gallon ale cask, supported on a stool, has been found to answer admirably, having the advantage of holding sufficient water on the top to secure the two corks being air-tight. By a suitable adjustment of a Mariotte's tube *M*, the rate of flow of the water can be so regulated that the level of the water in the condenser is constant, or, if desired, allowed to drop slowly into the waste pipe, while the water evaporated from *A* is replaced by water already near boiling. In practice it has been found necessary to allow the water to waste at the rate of about 2 drops a minute, the 18 gallons lasting for over 72 hours, during which time 10 to 11 gallons of distilled water are collected. When this apparatus was first fitted up in this laboratory, it was intended to have connected the condenser directly with the town water supply, but as the water works' authorities would sanction no such connection, we had recourse to the cistern, with the satisfactory result that we are in this respect quite independent of the caprice of the water works' turn cock. The several connections are made by union joints at *u u* to allow the apparatus to be taken to pieces and the boiler freed from scale. The whole apparatus may be supported upon a strong shelf, which should be protected from the heat of the burner by means of slates or asbestos millboard. With this arrangement bulky precipitates may be allowed to remain in the steam-oven all night and found ready for further treatment next morning.—ALEX. J. ATKINSON, in *Chem. News*, Nov. 21st.



Atkinson's steam oven and still.

Albuminated Sublimate Gauze and Dressings.

SIR JOSEPH LISTER recently read an important address on Corrosive Sublimate as a surgical dressing, at the Opening Meeting of the Medical Society of London, which contains some interesting points and valuable hints.

After speaking of several of the usual antiseptics, among which (it may be incidentally remarked) he does not ascribe very much efficiency to iodoform, he arrives at corrosive sublimate and first pays tribute to the investigations of Koch who ascertained by positive and incontrovertible experiments, that corrosive sublimate and certain other antiseptics had a twofold power, namely either to destroy the vitality of germs or bacteria, or merely temporarily to suppress it. For instance, a solution of 1 part of corrosive sublimate in 20,000 is amply strong enough to exert a *germicidal* action, and another of 1 in 300,000 will be found to exert an "inhibitory" action (as Lister terms it).

These properties of corrosive sublimate are such (continues Lister) as no other antiseptic agent had ever been ascertained to possess in anything like such dilute solution. With regard to

the purposes of antiseptic surgery, the "inhibitory" action of the antiseptic would be sufficient, provided we were satisfied that the wound is left free from injurious organisms, and that the dressing which we apply, itself contains no such organisms still alive. Then all we require is that the dressing should be able to prevent the *development* of organisms from without into the discharges with which the dressing may be soaked.

Corrosive sublimate has been used extensively by our German brethren, chiefly in the form of sublimate wood-wool, as it is called, in which one-half per cent of corrosive sublimate, with an equal part of glycerin, is mixed with "wood-wool," that is, pinewood reduced almost to a state of powder by machinery. This is highly absorbent and has given excellent results, but is somewhat unwieldy in its application.

Prof. Lister happened to use a dressing of sublimate gauze in the case of a wound where there was a very free hemorrhage after the operation. This wound was dressed with a piece of absorbent cotton charged with about five per cent of corrosive sublimate. On redressing the wound, Prof. Lister found that there had been no irritation caused by the dressing, as had been the case often before, and moreover, the blood-clot had an appearance such as he had never seen before. From the epidermic edges of the wound, the epidermis crept over the blood-clot like the white claws of an animal extending over the dark coagulum. Prof. Lister's explanation is this, that, while sublimate wool rendered the wound for surgical purposes perfectly aseptic, the *albuminous* discharge from the wound prevented the sublimate from coming into operation as an irritant, the most perfect conditions imaginable for healing a superficial wound.

The next question Prof. Lister takes up is, whether albumen and corrosive sublimate under all circumstances really form the insoluble, or very sparingly soluble compound recognized as such by chemists. If albumen really formed an insoluble and absolutely in active compound with sublimate, this would probably prevent the use of the latter in antiseptic surgery. To test the matter, Prof. Lister made a solution of egg albumen, and then introduced into it some sublimate wool, the quantity of albumen being about double that which would be necessary to form the alleged chemical compound with the sublimate. After a certain time he squeezed out the wool and obtained a clear fluid, which strongly *tasted* of corrosive sublimate. Hence the albuminous fluid had actually dissolved some sublimate from the wool. This liquid he then mixed with an equal part of milk from a dairy, and the milk remained perfectly free from souring, showing that the liquid had antiseptic properties.

He next made experiments with sublimate on horse's blood, and noticed the singular phenomenon that after this had come in contact with sublimate, it formed, on coagulation, a clot which *did not contract*, and did not give up the serum with which it was mixed, Prof. Lister's intention having been to obtain some blood-serum for further experiments, and to collect it under conditions which would exclude septic substances.

While obtaining blood from a horse, he caught one portion in a separate vessel, where it was stirred during coagulation so as to remove the fibrin.

This whipped blood answered his purpose perfectly, because by virtue of the remarkable tendency of the red corpuscles of the blood of the horse to aggregate into dense masses, and to separate in a short time, the mixture of serum and red corpuscles was found in three hours to have separated into two equal parts permitting the removal of the serum.

Experiment then made with sublimate wool, treated with various proportions of this serum in glass tubes, developed the fact that the fabric thus charged was perfectly resistent to septic processes. Even when only 1 per cent of sublimate was present, the odor noticeable after a long time was only a smell described as "being between mortar and the inner bark of some trees, which is the immediate effect of the sublimate upon serum."

While dressings of pure sublimate gauze of 1 in 500 had been observed to produce irritation and pustules on the skin, a dressing containing 1 part of sublimate in conjunction with 160 of serum produced no such effect whatever.

These and other considerations induced Prof. Lister to conclude that a combination of corrosive sublimate with albumen not only would render the former non-irritating, but to be actually the best and most suitable surgical dressing available. He recommends horse's blood-serum, which can be had in London.

Prof. Lister finds that the sublimate and the serum may be mixed in almost any proportion. He exhibited a gauze charged with a serum containing 1 part of sublimate in 75. Two and a half parts of this liquid are required for 1 part of the gauze. The charged gauze is odorless, and almost tasteless, and yet it contains nearly 3 per cent of sublimate. The proportion may be adjusted ad libitum 1 in 100 down to 1 in 30; and yet no sublimate flies off from it when dry. It is absolutely non-irritating. It should not be torn, however, as this will scatter a dust which irritates the nostrils; it should be cut with scissors.

Experiments made in the same manner with salicylic or iodoform dressings showed that these substances did not retard the decomposition of the serum. Eucalyptus gauze (if fresh) and carbolic gauze prevented its decomposition.

A different result is, however, obtained when, instead of the serum of blood, serum mixed with blood-corpuscles is used, such as is obtained from cow's blood, in which the blood-corpuscles remain largely suspended in the serum. In this case a much larger proportion of sublimate is necessary to repress septic processes. Yet, if a piece of gauze treated with 1 part of sublimate in 100 parts of pure serum, is afterwards treated with cow's blood —serum and corpuscles together—all septic action is prevented. In such a case every *other* kind of antiseptic failed to act except carbolic acid gauze.

Prof. Lister then says that he has recently dressed his hospital cases with gauze prepared with 1 of sublimate in 100 of serum, and also with 1 in 50. The former was always non-irritating; the latter irritated in a few cases, but on substituting the weaker gauze the healing process went on perfectly. In a case of hip-joint operation on a boy, the gauze was used, and after three days the symptoms were highly promising, there being normal temperature and returning appetite and strength. Prof. Lister strongly recommends that the gauze should be used in abundance (at least 16 layers) during the first twenty-four hours.

Prof. Lister thinks that this sublimated serum [which can be evaporated into scales on glass plates] will become an article of commerce, and that it will also be possible to dry and powder it, so that it may be mixed with vaseline as an antiseptic dressing, or even for dusting over the dressings.—After *Lancet*, Oct. 25th, '84.

"If you don't keep out of this yard you'll catch it," said a woman to a boy in West Lynn. "All right," answered the gamin; "I wouldn't have come in if I had known your folks had it."

THE NON-CONDUCTING HOOD.

This invention has for basis the well-known principle that the cooking of food may be effected through a preservation, for a given length of time, of the requisite amount of heat that has first been obtained.

[It is not alone for cooking food that this simple apparatus is useful for; it will be applicable to many purposes in the pharmaceutical or chemical laboratory, as, for instance, for prolonged digestion, for the very slow cooling of liquids intended for crystallization, etc., and it is on this account we give it room here.—[Ed. A. D.]

This hood consists of a dome-shaped contrivance of very thick felt, which is covered with cere-cloth, and is designed as a cover for a pot, saucepan, tureen, or any vessel whatever that contains food which one desires to cook or keep hot. The saucepan or other vessel is placed upon a heated refractory brick that rests upon a piece of thick felt, the hood is placed over the whole, and the apparatus is complete.

The object is to effect a saving in the fuel generally used for cooking food, to effect a saving in the time and surveillance that are necessary in all other methods, and to keep solid and liquid food hot at all hours of the night and day without any danger of spoiling it through excess of heat.

In order to show how the apparatus works, Mr. Lecorme du Tailles, the inventor, had prepared at the house of the director of the Normal School all the elements necessary for making a consommé soup. At exactly half-past ten, a saucepan of enameled iron, which stood upon an ordinary stove, having reached the boiling point (100°), was placed in front of us upon an isolated table, upon which lay the disks of refractory brick. Then the hood was placed over all, and it was agreed that six hours afterward an examination and test of the contents should be made in our presence. At the hour stated, the hood was removed, and, by means of a thermometer which Mr. Berjot had provided himself with, it was found in the first place that the heat of the liquid was 81°, the loss having been only 19° in six hours. If we take into account the delay that occurred during the verifications, and the double examination that was made, we may allow that, upon proceeding regularly, the reduction in temperature would not be more than 15°. On another hand, by taking special precautions, that is to say, by slightly superheating the refractory brick and employing a double hood, or even a slightly heated woolen covering, a still greater amount of heat might be kept up, say about 90°.

After ascertaining the degree of heat, a *potage au pain* was at once mixed.

The bread was saturated in an instant, and the aroma and quality of the soup left nothing to be desired. Afterwards the meat was taken out and found to be thoroughly cooked, as were also the vegetables. The experiment was therefore perfectly conclusive in favor of Mr. du Tailles's apparatus. The director of the Normal School asserts that all kinds of ragouts, game, poultry, meat, and vegetables can be cooked in the same manner, and says the apparatus has already been used at his house more than sixty times, and always with the same success. The steward of the Normal School gives the same testimony.

As an adjunct to the kitchen, the apparatus may be employed for keeping solid or liquid food hot for twelve or fifteen hours or more. Aside from its simplicity, the hood has the merit of requiring no expense or trouble to operate it.

Pine or Forest Wool.

Wald-Wolle. Laine des Bois.)

ABOUT the year 1840, a new and curious industry sprang up at a place called Humboldtsau, or the meadow of Humboldt, situated near Breslau, upper Silesia, which, like most novelties, had for several years to struggle with difficulties before it could be said that its position was established—that, in fact, it occupied a place in the estimation of the public, or was noticed by the medical profession. This industry consisted in the utilization of the acicular leaves, or leaflets of the pine in the production of a substance to which the name "Wald-Wolle," that is, "pine, or forest wool," was applied; and it evidently extended itself, for there subsequently arose new manufactories at Pemda, in the Thüringer Wald; at Jonköping, in Sweden; Wageningen, in Holland; as well as in some parts of France.

Schledel, in his *Waaren-Lexicon*, mentions this substance under "Wald-Wolle," and describes it as "the fibres of the needles of *Pinus sylvestris*, also of the black pine, *Pinus niger austriaca*, fabricated after the process introduced by Joseph Weiss, of Zuckmantel, Austrian Silesia. When prepared, it resembles horse-hair, and has been used for stuffing mattresses, which purpose it seems to have fully answered, and the mattresses stuffed with it possesses an aromatic odor. In the process of its manufacture a volatile oil is obtained called Wald-wolle-oil, or forest-wool oil, which is used as an external application in rheumatic affections. The Wald-Wolle products can be procured in Berlin, Viena, Leipsic, etc.

According to Hager, Weiss used the fibre of the pine leaf in the manufacture of paper, and observed that those workmen who happened to be afflicted with gout or rheumatism were relieved by the application of the pine-needle products. Hence their introduction as remedial agents into medical practice.

Simmonds, in his "Dictionary of Trade Products," calls the article pine-needle wool, or pine-wood wool, "a fibrous vegetable substance obtained in Prussia, by treating the buds and leaves of coniferous trees with a strong solution of carbonate of soda. The fibre so obtained is used there for upholstery purposes, such as stuffing for mattresses, intended as a protection against insects, and also for wadding; blankets are made with it, and oil and soap are also obtained from it."

The term pine-wood wool is incorrect, and confounds this with a very different article called "Holzwolle," also of German origin, consisting of the pine-wood reduced to a coarse fibrous powder, an article which, impregnated with bichloride of mercury, is now recommended as an antiseptic dressing in surgery.

In the *Journal d'Agriculture pratique*, there is an article by Professor Charles Morren, mainly a translation from the *Bernische Blätter für Landwirthschaft*, January, 1852, "Note on the Vegetable Wool extracted from the leaves of the Pinus Sylvestris," of which the following is a summary: In the neighborhood of Breslau, in Silesia, in a property called the "Meadow of Humboldt," there exist two establishments—one a factory where the leaves of the pine are converted into a kind of cotton, called pine or forest wool; the other an establishment for invalids, where the waters used in the manufacture of the pine wool are employed as curative agents, affording relief to the sufferers from rheumatism. Both of these owe their existence to Herr von Pannewitz, inspector of forests, and inventor of a chemical process, by means of which there is extracted from the long and fine pine leaves a fibrous substance called forest wool, because it curls, felts, and can be spun as ordinary wool.

The wild pine, from which this wool is obtained, is much esteemed in Germany for its many valuable properties, and instead of leaving it to its natural growth, extensive plantations are cultivated, and the use Herr von Pannewitz has made of the leaves will contribute to extend the cultivation of the pine in other countries.

The acicular leaves of pines, firs, and conifers in general, are composed of a bundle of fine and tough fibres, surrounded and kept together by a resinous substance. Boiled with an alkali, the resinous substance is dissolved, when it is easy to separate the fibres, and to wash and free them from all foreign substances.

According to the process employed, and the leaves used, the wooly substance is of a fine quality, or remains in a coarser state.

In the first case it is used as wadding, in the second for upholstery purposes.

The first use that was made of this filamentous substance was to substitute it for cotton or wool wadding in quilted blankets. In 1842, the hospital of Vienna bought five hundred of these blankets, and after a trial of several years a further supply was ordered. It was observed that under the influence of pine wool no noxious insects sheltered in the beds; it was found also that the aroma was agreeable to the occupants. Soon after, the workhouse of Vienna was furnished with similar quilted blankets.

Similar articles, as well as mattreses stuffed with the wool, have been used in the Charité and in other hospitals at Berlin and in the barracks of Breslau.

An experience of five years in these establishments has proved that articles made of pine wool are very useful and durable, never troubled with moths, and only one-third the price of horse-hair. Besides, it can be spun and woven. The finest quality gives a yarn resembling hemp and equally strong. Spun and woven as cloth, it yields a fabric that may be used for carpets, horse-blankets, etc. The exhibitors of these products were awarded a bronze medal at the exhibition of Berlin, and a silver one at that of Altenburg.

Such is the account given by Prof. Morren of the pine-wool productions, but I am informed that the quilted blankets referred to by him are not now used in the Vienna Hospital, straw having superseded the pine-wool as a stuffing for mattresses.

Bentley* says: "From the leaves of this species (*Pinus sylvestris*) the substance called pine-wool or fur-wool is prepared. It is used for stuffing mattresses, etc., and is said to be repulsive to vermin. Wadding for medical use and cloth for various articles of dress, etc., are also manufactured from these leaves."

Martindale* thus refers to it: "Fir-wool, or fir-wool wadding, obtained from the pine leaves, is sold as a brownish-yellow fibre, in sheets like cotton-wool. It has a faint agreeable odor of the pine leaf, and is manufactured into blankets, jackets, spencers, stockings, etc."

The last two authors refer to the "source of true pine-wool, but describe an entirely different article.

In the "National Dispensatory," Stillé and Maisch refer to these products, and state that "the leaves of the different species of pine, when distilled with water, yield volatile oils, which differ from the volatile oils obtained from the resin of the same species. Such an oil is known, and to some extent employed in Germany, as Fichtennadelöl (fir-leaf oil), and the leaves, by pounding, are converted into a fibrous substance known as Fichten-wolle (fir-wool)."

I am indebted for samples of the true pine or forest-wool (Wald-Wolle) to M. Bernardin, Musée de Melle, Belgium; to Herr Detrich, Prague, and to Dr. Maschke, in Breslau. I have also received two samples from S. Graetzer, of Carlsruhe, the depot for conifer preparations of Humboldtsau. These two differ in quality; the finer is labelled "adapted for coverlets," and the coarser, for "stuffing cushions." This substance, more or less fine, and with a faint pine odor, constitutes the article known as Wald-wolle, pine or forest wool, throughout Germany and the Continent generally, and all authorities to which I have had access agree to its origin, the pine leaf; its character, a fibrous substance, and the several uses, previously enumerated, to which it has been applied with more or less of success. Some eminent members of the medical profession on the Continent have spoken favorably of these pine-wool productions, but whether they deserve or not the high encomiums passed on them, it is nevertheless an important fact that a material, before considered almost useless, is now converted into articles of domestic utility. . . .

There is now in English commerce a fibrous article, in sheets like cotton-wool, to which the same name of pine or forest-wool, pine and fir-tree wool, pine-leaf wool are indifferently applied. Samples of this substance were obtained from different sources, but they so clearly corresponded that they pointed to one common origin. [The microscopic examination of this substance by the author proved it to be composed of *cotton*.] . . .

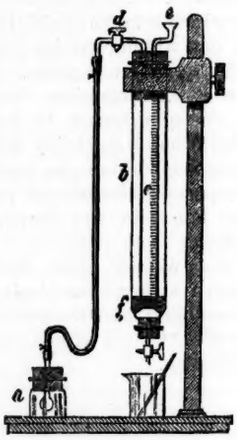
In addition to this fibrous article now described, there is another material called "pine-foliage forest-wool flannel," hygienic flannel, also "from the forest of Thuringia," claiming public and professional patronage. It professes to be made from the fir-wool, the produce of the Black Forest fir, Pinus sylvestris. This is a woven material of the same color as that previously described. The warp was detached from the weft in order that they might be examined separately; the warp, when the dye was removed, turned out to be *cotton*. The fibres of the weft were next examined. In burning, they gave off that peculiar horny empyreumatic odor indicating an animal origin; boiled in caustic alkali, they were completely dissolved; examined under the microscope, the imbrications on the individual hairs proved previous suspicions to be correct, that this fibre consisted of wool. The woven material was, therefore, a combination of ordinary cotton and sheep's wool, the former probably rather preponderating.

* Manual of Botany, 1882, 678.

* Extra Pharmacopœia, 1883, 216.

These fibrous materials profess to owe their origin to the leaves of the Pinus sylvestris; but the venation of most of the coniferæ is simple; one single unbranched mid-rib, and the only available true fibres are the fibro-vesicular bundles of this mid-rib which are surrounded by parenchymatous tissue. The fibro-vascular tissue of the mid-rib shows, with the proper reagents, a distinct difference from that of cotton.

It would appear, then, that this "curious industry," consisting in the utilization of the leaves of the pine in the formation of a fibrous material called pine or forest wool, has given birth to another curious industry, which is endeavoring to attract the attention of the medical profession; the results of this investigation may assist in determining its true value as an addition to our remedial appliances.—*Abstract of a paper by* THOMAS GREENISH, in *Pharm. Journ.*, NOV. 15th.



NEW AND CONVENIENT APPARATUS FOR ESTIMATING CARBONIC ACID.

DR. R. BAUR recommends the apparatus here described as being more practical and easily managed than any other.

It consists of a generator *a*, and a gas-receiver *b*. The generator *a* is a wide-mouthed bottle, fitted with a rubber-stopper through which passes the neck of a very small flask provided with a hole about half way up the globe, and intended to hold the acid necessary to decompose the carbonate. This small flask is connected, by means of stout rubber-tubing, with a graduated tube *c*, open at the bottom and contained within another larger tube. Both the inner and the outer tube are closed at the top, and only the gas delivery-tube communicates with the inner tube, while a funnel-tube *e* communicates with the outer tube. At *f*, a notched cork inserted into the larger tube holds the inner one in a perpendicular position. *D* is a three-way cock, by means of which communication may be established either between generator and receiver exclusively, or also between either of these and the external air.

The use of the apparatus will be readily understood from the following:

The three-way cock is removed altogether and the tube *b* filled up to the mark 0° with a suitable liquid, which will absorb none or but traces of the carbonic acid gas. Next a quantity of the powdered carbonate (f. i., 200 milligrammes of marble) is put into the generator *a*, and a sufficient quantity of acid into the little flask. The rubber stopper is then moistened and carefully inserted. Next, the three-way cock is inserted, so that the communication of the inside of the apparatus with the outside is still open for a few seconds. It is then turned so as to exclude communication with the external air, and to be open only inside. The level of the liquid in the outer and inner tube of the receiver must be still exactly at 0°; if not, it must be adjusted.

Now the acid in the little flask is made to flow upon the carbonate by inclining the bottle, whereupon the gas will be given off, and will depress the column of liquid in the inner tube, while that in the outer will rise. In order to remove the excess of pressure, the stop-cock at the bottom of the receiver is opened now and then, and enough liquid allowed to run out, until the level of that in the inner is alike with that in the outer tube. Should too much have been withdrawn, a little may be poured back through the funnel *e*. When no more gas is given off, even after agitation (the bottle must not be handled with the hand, but must be protected by felt to prevent radiation), and the two levels are exactly alike, the volume of the gas is read off, and the corresponding calculation made. For instance, at 717 millimeters barometric pressure and 15° C., each cubic centimeter of carbonic acid gas corresponds to 4 milligrammes of carbonate of calcium, supposing we had analyzed this salt. At other barometric or thermometric conditions, the usual corrections must, of course, be made.—*Journ. prakt. Chem.*, 1884, 490.

White Label Paint.

A WHITE varnish or paint for painting labels upon glass, wood, or metal, known in Germany as "Cracau's Shilderlack" (Cracau's Label-varnish) is prepared in the following manner:

Triturate 150 parts of best zinc white and 3 parts of finely powdered acetate of lead in a warm mortar with a little oil of turpentine, to a uniform mass of the consistence of lard; then add gradually, under constant stirring, 20 parts of *boiling* (not "boiled") linseed oil. Though the resulting mixture has a very dark color, this does not interfere with the uses of the varnish, as it will produce a perfectly white surface. Next, 90 parts of dammar varnish (made from 1 part of dammar and 2 parts of oil of turpentine), 5 parts of castor oil, and lastly 20 parts of copaiba are added, the whole well mixed, and finally diluted with about 100 parts of oil of turpentine. The varnish is transferred to a cylindrical vessel, and set aside for about one week. During this time any coarse grains of zinc white will settle to the bottom. The supernatant liquid and a portion of the sediment (about three-fourths; all but the coarse portion) are poured off, and the varnish or paint is now ready for use.—*Pharm. Handelsbl.*

Removal of Oil-Stains from Wall-Paper, Tapestry, etc.

MIX pipe-clay or fuller's earth with cold water to a paste, and apply some of it to the soiled spot, without friction, so as not to injure the design. After having remained there for about twelve hours, it is removed and the remains brushed off. The porous material, after the water has evaporated, soaks up at least a portion of the oil. If the stain does not disappear by one application, it is to be repeated.

Exports of Essential Oils from Ceylon.

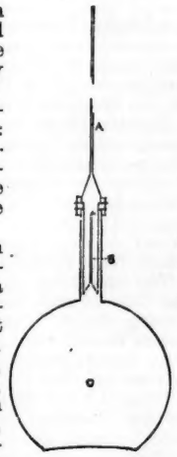
DURING the last four years the export of essential oil of citronella from Ceylon has risen from 1,760,677 ounces to 4,827,020 ounces, of which latter 2,115,671 ounces went to Great Britain and 2,515,014 ounces came to America. Oil of cinnamon exports also increased from 41,719 ounces to 104,185 ounces, 71,945 ounces of which went to Great Britain and 21,600 ounces came to America.—*Pharm. Journ.*

Testing Butter for Foreign Fats.

H. BECKURTS has tested butter in accordance with Reichert's method, 2.5 grammes of the dried fat were saponified with 1 gramme of potassium hydroxide, and 20 grammes of 80 per cent alcohol. The mixture was heated on a water-bath to expel the alcohol; it was then diluted with 50 C.c. of water, and, as soon as the soap had dissolved, 20 C.c. of dilute sulphuric acid (1 acid to 10 vols.) were poured in and the mixture distilled, a platinum spiral being introduced to avoid bumping. The distillation was continued until exactly 50 C.c. were obtained. In the case of genuine butter, Reichert found that 14 C.c. of decinormal soda-solution were required to neutralize the distillate, but the author had to employ from 15.6 to 17.5 C.c., and concludes therefore that Reichert's numbers were too low. He also states that, in order to obtain concordant results, it is necessary to adhere strictly to the above proportions.—H. BECKURTS, *Dingl. Pol. J.* and *Journ. Chem. Soc.*

PERCOLATION WITH BOILING FLUIDS.

THE apparatus described below was devised for use in the proximate analysis of drugs to effect exhaustion with boiling ether or petroleum spirit. It has answered this purpose admirably, and has also proved exceedingly convenient in extracting the fat from milk residues, and doubtless would be of service in many similar estimations.



The apparatus consists of three parts: A, the long condensing tube; B, the percolator; and C, the flask to contain the solvent.

C, the flask, which may be of any desired capacity, has a long neck and thickened lip, ground flat on the upper surface.

B, the percolator, is a cylindrical tube, a little shorter than the neck of the flask, and in diameter one-eighth to one-fourth of an inch smaller than the latter. The mouth of the tube bears a thickened flange, ground on both its upper and lower surfaces. The bottom of the tube is puntied and perforated, and drawn out at the centre into a fine tube curved at the apex, and nearly as long as the percolator.

A, the condenser, is simply a long glass-tube with conical, funnel-shaped mouth and thickened rim, ground on the upper surface.

A little cotton wool being placed in the bottom of the percolator, the substance to be exhausted is introduced and packed. Upon this is laid a little wool (or disk of filter paper), and finally a thin ring of cork fitting the tube somewhat tighter. A sufficient quantity of menstruum being placed in the flask, a thin ring of cork is pushed down over the percolator, and the latter fitted in the neck of the flask. Another cork disk is laid upon the mouth of the tube, and the funnel of the condenser applied to it, and the whole secured together by a little string or wire.

The action of the apparatus is obvious. With very volatile liquids it is advisable to pass the tube A through a wider tube, through which a current of cold water is constantly passing. In my hands, fitted as above described, it has proved more convenient and satisfactory than any other form of apparatus for this purpose which I have tried.—J. C. THRESH in *Pharm. Journ.*, Oct. 11th.

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EDITORIAL.

THE recent rise in the price of quinine salts is the most notable event which has occurred of late in the drug-trade, and the opinion expressed regarding it by those who are more or less familiar with the market is, that the advance is of a purely speculative character, and not warranted by any curtailment of supply. It is thought that the disposition of the retailers to lay in a stock at the low rates previously ruling may have had some influence, but this element of disturbance is not likely to be of long duration at this season of the year, and increased receipts of foreign quinine will probably soon cause a return to lower prices.

WE are pleased to learn that the series of papers on The Artistic Decoration of Drug-Stores, commenced in November, the continuation of which will be found in this and the preceding number, are received with much favor by our readers. It can hardly be presumed that all the suggestions therein contained will be susceptible of direct application, but we believe that, in general, they will be found serviceable and will lead to an improvement in the appearance of the pharmacist's surroundings.

There is much force in the remarks of the writer of the article respecting the contrast, in many instances, between the drug-store and other business places, but this is often owing to want of means, rather than want of taste or enterprise. Notwithstanding the popular opinion that a well-equipped pharmacy is a mine of wealth, the proprietor has often to deliberate over expenditures which would receive hardly a second thought on the part of his neighbor engaged in another business. This makes it the more desirable that any design or mode of arrangement should be chosen with circumspection. The text of these chapters has been prepared by a writer who has given special attention to this subject, and the general principles of artistic management to be found in these papers will, we think, be applicable to a variety of conditions besides those embraced in the illustrations.

How is the popular prejudice in favor of the poroused plaster to be accounted for? It is said that the idea originated with a workman in the establishment of a well-known maker of plasters, and that the theory of its value consisted in the supposed need for allowing, at all times, a free exhalation from the skin. The fact is, that most of the benefit derived from the use of plasters is owing to the retention of such exhalations and, at other times, to a mild degree of stimulation and the mechanical action of the plaster in securing immobility of the skin to which it is applied. Most of these effects could be quite as well attained with the use of ordinary adhesive plaster; and just in proportion to the porosity of the plaster would we fail to obtain such benefits.

The experience of many persons teaches the value of an impermeable covering in relieving local pain. In the form of cotton, flannel, oiled silk, gutta-percha and india-rubber tissue, such dressings have long been employed in cases of rheumatism, gout, and neuralgia. Even cases of joint disease and diseases of deeply-seated bone are relieved of some pain by such coverings. The heavy flannel bandage about the abdomen in cases of intestinal pain and of chamois or flannel jackets in pain of pleuritic origin, are very common popular precautions. A coating of flexible collodion generally relieves the burning pain of the first stage of shingles, and a rubber bandage will usually greatly mitigate the itching of eczema. In all these instances, it is the impermeable nature of the dressing which accomplishes the good result, and the efficacy of the remedy will be lessened by every aperture which allows the escape of moisture. The value of moisture and a mild degree of rubefaction is also well shown in the use of the poultice. Now, who would expect benefit from a poultice which, in compliance with this popular prejudice, had been made of a material so porous as to allow a free escape of moisture from the surface covered by it? If stimulation is the object sought to be accomplished, the good effect can certainly not be increased by cutting out portions of the plaster, and the larger and more numerous such open spaces, the feebler must naturally be the effect of the remedy. The same argument will be true in the case of a plaster containing a remedy intended for absorption.

It seems, therefore, to us that for all the purposes for which a plaster can be used, one which is impermeable is preferable to one which contains perforations. There is one exception. Some time time since an ingenious Western surgeon having occasion to close a gaping flesh wound, and being without the usual means for doing so, took two pieces of a poroused belladonna plaster which he found in the house, and after applying them carefully to the sides of the wound, laced them together with a string, thus closing the gap, and enabling him to observe the condition of the wound without removing the dressing.

THE success of the "Campion Plan" in this neighborhood is as yet by no means assured, in spite of the faithful labors and ardent hopes of its promotors. Cutters in New York and Brooklyn are still demoralizing the public, and the managers of the plan have been obliged to apply the hatchet to one of the largest jobbing and wholesale houses on their list. Meanwhile the effect upon the retail trade has been to lead some of its members to consider whether the present troubles do not warrant such a change in their business as will eliminate all but a strictly pharmaceutical trade. The size of the city has much, no doubt, to do with the success of such an undertaking; but we believe that one of the best-paying establishments here is one that has always been conducted on this basis. Physicians send their prescriptions to it from long distances. Patients have confidence in the articles dispensed by an establishment which is devoted strictly to prescription work, and do not begrudge a living profit when they see the pains taken to insure the purity and excellence of the remedies dispensed.

No patent medicines are to be found on its shelves, no toilet articles—not even a cake of soap—are to be discovered in its limits (if we except the one in constant use). The only sponges are those which have been rendered antiseptic for surgeons' use, and the soda fountain is conspicuously absent. Prescriptions are dispensed in full view of the customers, and the proprietor, assistants, and the female cashier are always busy.

NOTES ON PRACTICAL PHARMACY.*

(Continued from p. 235.)

MIXTURES.

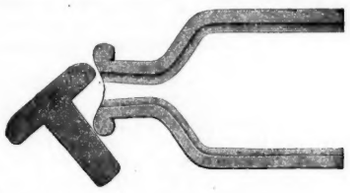
THIS term is generally understood to mean fluid medicines for internal use, which consist of simple mixtures of fluid substances or solutions of extracts, salts, etc., in distilled waters or in pure water, and which are taken by the spoonful. The water in this case is not one of the essential medicinal constituents, but only the vehicle, *i. e.*, an auxiliary for giving the medicine the proper form and adapting it for use, or else it is the solvent (*menstruum*).

Where fluid substances are to be mixed, it is the rule [in Germany and in other continental countries] not to measure any of them, but to weigh each separately and, moreover, with few exceptions, always to weigh the smallest quantity first, and then progressively up to the greatest quantity, into the vessel, because the sensitiveness of the scales diminishes with the augmentation of the load, and because the substances to be mixed in small amounts are generally medicinally the most active. Where a fluid is to be added in a certain number of drops, the latter must be dropped into the vessel first, for should an excess of drops fall in, they can be poured back and the dropping be repeated after the vessel has been rinsed. Fluids up to 1 gramme [15 grains] are generally dropped, and according to the official Prussian directions there are counted to each gramme—of the fatty and specifically heavy ethereal oils and the tinctures, 20 drops; of the remaining ethereal oils, of chloroform, acetic ether, spirit of ether, and watery liquids, 25 drops; of ether, 50 drops. Although this measure does not approach acccuracy, it is to be strictly adhered to; on the one hand, for the sake of uniformity in the preparation of medicines; on the other, to suit the dosage of the prescribing physician who is [usually] aware of this relation of the drops to the weight.

The form and shape of the edge of the vessel have great influence on the size of drops. Should the drops from some vessel be too large because of its thick and wide lip, accuracy requires that the dropping be done into a weighed vessel, and the amount thus attained be ascertained by weighing. Any excess must then be dropped back, and the number of drops marked on the prescription in parenthesis, or better, stated in a small memorandum on the prescription. Thus, in the case of tincture of opium dispensed by weight, the dropping is done as follows:

The vessel from which the dropping is to be done is first shaken with its contents, the stopper taken out, and with its lower portion, moistened by the agitation, a streak is drawn from the interior of the neck to the edge of the lip, so as to make a passage for the flow of the drops. From large vessels or those with very thick lips, the drops usually fall very large. From vessels with very narrow lips most liquids cannot be dropped at all. From these latter vessels, which are in common use as stock vessels, the dropping should be done with the following precautions: The bottle is shaken, with the moistened stopper a passage is made for the fluid to the lip of the vessel, the moistened end of the stopper is held at this point of the lip, and the drop is allowed to fall from the stopper. The drops flowing from glass stoppers are, for obvious reasons, on an average one-fifth larger than those from the lip of the bottle, for this reason the number of drops should be reduced by one-fifth. Dropping should always be done while turned toward the light.

The weighed fluids having been united by shaking, which is done after the cork has been inserted, the mixture, if it is intended to be clear or translucent, is held toward the light and examined to see whether there are floating in it any minor impurities which occasionally are due to dust or



pieces of cork. If this be the case, the mixture should be strained. For this purpose use a straining cloth made of milling or of unbleached linen (or muslin) which must, however, not be too dense in texture, for in that case mucilaginous and saccharine liquids would pass too slowly, if at all. Flannel strainers are not practical, as, on account of their woolen fibres, they cannot be as thoroughly cleansed as those of linen, and also because they absorb and retain too much of the fluid. Strainers for mixtures are from four to six inches square in size and should be hemmed. Those for colored mixtures are kept separate. Before using the strainer, the dispenser should convince himself that it is clean. As a precautionary measure, he should beat it with his hands so as to remove any dust possibly adhering. When mucilaginous or saccharine mixtures are to be strained, it is advisable to moisten the centre of the cloth with a little water beforehand. It is self-evident that before using any new strainer it must be washed with hot water so as to free the fabric from dressing. Cleansing of the strainer after use is to be done with water to which some soda solution has been added, followed by pure water.

If there are only a few large impurities, such as pieces of cork, fibres of cloth, flakes of paper, etc., floating in the mixture, it may be passed through a piece of washed gauze or through a very loosely folded wad of washed gauze or loose glass-wool (a pellet of cotton is not quite suitable) placed in a funnel with a bulbous neck.

[Regarding a pellet of cotton, we differ from Dr. Hager, as we consider this to offer a very simple and convenient method for straining liquids which are not too viscid. A small pellet of purified absorbent cotton is so shaped that a small portion will form a point entering the neck of the funnel, while the larger portion lies against the sides of the funnel near the neck. After the fluid has passed through the cotton, the latter retains only a very small proportion of the liquid, and is then simply thrown away.]

It would do also to use an ordinary small glass filtering funnel into the neck (*b*) of which a very loose pledget of glass wool has been inserted by means of the wire hook *d*, thus: the pledget of glass wool is placed in the funnel, the wire passed in through the opening *f*, and the hook *e* made to grasp the wool and draw it into the neck *b*.

ORDER OF MIXING FLUIDS.

If fluids are to be mixed which decompose each other or enter into combination, the order of mixing them is often very important as regards the quality and appearance of a mixture. An example will serve best to explain this:

℞	Gm.	
Liquoris Ferri Chloridi	5.0	gr. 75
Mucilaginis Acaciæ	25.0	gr. 400
Aquæ destillatæ	200.0	f ℥ 6¾

If the mucilage be added to the solution of the iron salt, there is formed a gelatinous mass which cannot be made to form a clear solution with the remainder of the water to be added or to mix equably with it. On the other hand, a clear yellow liquid is obtained if the iron solution and the mucilage be each previously diluted with half of the water and then mixed, or if the whole amount of water be added to the chloride of iron solution and the mucilage then stirred in.

A similar rule holds good in mixing fluids containing tannin with solutions of metallic salts or alkaloids. In such cases it is always advisable to dilute both the one and the other ingredient first with a corresponding amount of the water entering into the mixture. For instance:

℞	Gm.	
Plumbi acetatis	0.25	gr. 4
Tincturæ Opii	2.0	♏ 30
Aquæ destillatæ	200.0	f ℥ 6¾
Syrupi	25.0	f ʒ 5¼

In this composition the sugar of lead should be dissolved in half of the water, and then the tincture of opium, first diluted with the remainder of the water added, in order to obtain a slightly turbid mixture, but not one permeated with insoluble flakes.

℞	Gm.	
Decocti Chondri (5 in 100)	250.0	f ℥ 8
Tincturæ Opii	2.5	♏ 40
Syrupi Croci	50.0	f ℥ 1¼

In this prescription it is necessary to mix the tincture of opium with the syrup of saffron by agitation, and then to add to it the mucilage of Irish moss; for if the latter come in contact with the undiluted tincture of opium, flakes are formed which cannot be dissipated by shaking.

Where it is required to mix vegetable substances which are wholly or partly soluble in water, especially when they contain tannin or similar bodies, with earthy salts or metals, before the final mixture both the former substance and the salt, each separately, should be diluted with half or a part of the water or syrup which enters into the composition. We then obtain clear mixtures or such as contain a sediment which is really incorporated by agitation, for instance:

℞	Gm.	
Extracti Krameriæ	20.0	gr. 300
Aluminis	10.00	gr. 150
Infusi Salviæ	200.0	f ℥ 6¾
Mellis depurati	50.0	gr. 770

In compounding this, the infusion should first be mixed with the purified honey, the alum be dissolved in one-half of this mixture, the other half

*The basis of this series of papers is the latest edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany, and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [ ].
The use of the original text has been kindly granted by Dr. Hager.

rubbed up with the extract, and both fluids finally mixed; or else, the extract should be intimately united with the honey by rubbing in a mortar, and mixed with the solution of the alum in the infusion.

MIXTURES WITH ALCOHOLIC LIQUIDS CONTAINING RESINS AND OTHER SIMILAR BODIES IN SOLUTION.

These are very frequently prescribed and their preparation is easy if some syrup is to be mixed with them. In this case, the syrup is first weighed into the vessel, and then the liquid containing the resin. Both having been intimately united by agitation, the remaining watery fluids are added and mixed therewith. Saccharine juices have the peculiar property of being uniformly miscible with most of the alcoholic solutions of resins; with many resinous tinctures they even give clear, non-turbid mixtures. Where no saccharine liquid is ordered, the rule is to add the resinous tincture to the watery fluid, even if the former be ordered in small quantity, because, in that case, the precipitated particles of resin are more equally and more finely divided in the watery liquid and remain suspended therein. If the mixture be made in the inverse order, larger particles of resin are sure to separate and to adhere either to the inner wall of the vessel or to collect on top of the mixture. It should be noted, moreover, that *the resinous solution is to be added to the watery liquid only when quite cold.* If the latter be warm or hot, the separated particles of resin cohere into lumps which remain attached to the wall of the vessel in an unsightly manner or float about in the mixture.

Such alcoholic resinous liquids as are sometimes ordered to be added to watery mixtures by the physician are: *Tinct. Ambræ, Tinctura Benzoini, Tinct. Castorei, Tinct. Cannabis Indicæ, Tinct. Colocynthidis, Cubebæ, Guaiaci, Jalapæ, Laccæ, Lupulini, Myristicæ, Myrrhæ, Pini comp., etc.* Should there be, in spite of every precaution, a separation of the resin in unsightly particles, they are collected in a previously moistened strainer, and sought to be rubbed up with some powdered gum arabic, and a few drops of water. Although receptology cautions against the mixture of alcoholic resinous liquids with watery fluids, such irregular prescriptions still occur. A very prevalent mixture, however, is the one ordered for cosmetic purposes, the so-called *Lac Virginis*, consisting of tincture of benzoin with rose-water:

	Gm.	
℞ Tinct. Benzoini....	10.0	f ʒ 3
Aquæ Rosæ.....	150.0	f ℥ 5

M. D. S. One tablespoonful to be added to the wash-water.

Here the tincture is added to the water, the resin separating in very minute particles, but remaining suspended in the water and forming therewith a rather stable milky fluid.

MIXTURES WITH EXTRACTS AND INSPISSATED VEGETABLE JUICES.

Extracts, unless they are of fluid or pulverulent consistence, are weighed by attaching them in the prescribed quantity to the broad extremity of a weighed silver or iron spatula, known as an extract spatula. Spatulas for taking out and weighing extracts are not round in the middle, but flat over their whole length, otherwise they would roll around during the weighing of the extract, and thus facilitate the latter's flowing off. It is not admissible to use ointment spatulas for this purpose. [In this country, round-handled spatulas are not used.] Solution is effected in a mortar with spout, termed a mixture mortar, by rubbing up and mixing therein the extract with a small, gradually increased quantity of the fluid serving as the vehicle of the preparation. If the vehicle be hot, solution is effected the more readily, and even the soft extract, if it be one of the aqueous ones, so-called, can be quickly added to the hot fluid and dissolved in it by stirring. Many of the alcoholic extracts, such as Extractum Cinchonæ, Calumbæ, Colocynthidis, Physostigmatis, Lupuli, Millefolii, Opii, Quassiæ, Rhei, Nucis Vomicæ, Valerianæ, after being rubbed to powder, are first brought to a syrupy consistence in the mortar by the aid of a few drops of the *cold* aqueous fluid, and then mixed with the remaining fluid, but always cold. If dissolved in hot water or a hot decoction, a partial separation of their heterogeneous constituents always ensues.

If very small quantities of extract have to be weighed, this is done on delicate scales upon a small piece of paper, another piece of equal size being placed as counterpoise with the weight.

If so-called extract scales with removable silver pans be available, they are, of course, made use of. The soft extract is weighed on the pan, and in the mixture mortar the pan is flooded with the menstruum.

It is convenient to weigh soft extracts and plant juices on glass plates of about ¼ to ⅝ inch length, and $\frac{3}{16}$ to $\frac{5}{16}$ inch breadth. The weight (or *tare*) is marked on the glass plate by means of a writing diamond. From the glass the extract can be so completely removed with the extract knife that not even a trace of the extract remains behind. The extract knife is a sharp knife with a sharp end and flexible steel blade, with which pill masses can be removed from the mortar even to the last traces.

Extract spatula. Pill-knife or extract-knife.

Powdered extracts or *dry extracts* must not be shaken into the mortar, but should always be first dissolved in the mixture mortar by trituration with a small amount of the vehicle. To the same class belongs also Lactucarium which should first be rubbed up with double the quantity of sugar, and a few drops of alcohol.

Lest any of the extract remain in the mortar, the latter should be rinsed several times with the solvent. Where solution is difficult, it should be aided or completed by the application of heat.

Extracts of a resinous character, such as Extr. Santonicæ æth., Oleoresina Aspidii, Extr. Granati rad. corticis, and the like, do not dissolve in water. Should they form a constituent of a watery mixture, they must be intimately mixed with double or treble the quantity of powdered gum arabic by trituration in the mortar, and the mass then to be united with the fully cooled vehicle under continued trituration. If a syrup enter into the mixture, the mass is first mixed with it.

	Gm.	
℞ Ammonii Chloridi,		
Extracti Glycyrrhizæ ää	5.0	gr. 75
Aquæ destillatæ.....	100.0	♏ 100
Extr. Santonicæ æth.....	1.5	gr. 23

The extract of santonica is rubbed up with a scruple of gum arabic and the chloride of ammonium, then a concentrated solution of the licorice, and finally the cold water gradually added under constant trituration.

Hydro-alcoholic Extracts (or extracts made with dilute or weak alcohol) do not dissolve in strong alcohol and it is difficult even to mix them with it. Where such a mixture is called for, the extract is dissolved in an equal or double quantity of water, and the alcohol or the alcoholic tincture added at once under stirring. The quantity of alcohol is to be reduced by the amount of water employed for the solution of the extract. For instance:

	Gm.	
℞ Extracti Hyoscyami...	1.0	gr. 15
Tincturæ Valerianæ...	5.0	♏ 80
Spiritus Ætheris.....	20.0	f ʒ 7

According to what has been stated, this prescription would have to be altered, the ethereal spirit being only an adjuvant, as follows:

	Gm.	
℞ Extr. Hyoscyami.....	1.0	gr. 15
Solve in		
Aquæ destillatæ.....	2.0	♏ 30
Tinct. Valerianæ.....	5.0	♏ 80
Tum adde		
Spiritus Ætheris.....	18.0	f ʒ 6½

However, if the extract is to be mixed with a very active ethereal tincture, such as *Tinct. Digitalis æth.*, nothing remains but to rub up the extract with an equal weight of water and the tincture, and finally to pour off the liquid from the insoluble part which any way firmly adheres to the walls of the vessel.

Inspissated plant juices and *pulps*, like the extracts, are dissolved in water; with the difference that these solutions are allowed to deposit in a graduate for two or three minutes, when they are carefully poured off from any sediment that may have been deposited, into the mixture vessel.

Narcotic, non-resinous extracts may be kept in stock in concentrated solutions. For ten parts of extract a mixture of twelve parts of water, four parts of glycerin, and four parts of alcohol is taken and labelled: "Take triple the quantity" (about ten drops contain 0.1 Gm. of extract). Ext. Aconiti, Ext. Belladonnæ, Ext. Hyoscyami, and some other narcotic extracts yield turbid solutions *which must be well shaken before being dispensed.* These solutions are not liable to spoil. The narcotic extract, generally dispensed only in small quantities, can be employed in solution only if it has been prepared very accurately as regards the quantities of extract and solvent, and if the number of drops which contain 0.3 of extract solution has been exactly determined by weight. The label of the narcotic extract solution, therefore, should state also the number of drops to be taken for each decigramme [or grain] of extract, for drops of the same fluid from different vessels, as stated above, are not of equal weight. Besides, it should be remembered that in Germany the employment and keeping of narcotic extract solutions for facilitating dispensing is permitted by the pharmacopœia. The narcotic extract solutions are to be made of ten parts of *extract*, six parts of *water*, one part of *alcohol*, and three parts of *glycerin*. The permanence of these solutions is not assured; they are, besides, of syrupy consistence and not easily dropped, and as the weighing according to the one-in-two proportion is more difficult with a viscid fluid than the weighing according to the one-in-three proportion with a mobile liquid, the solution of ten parts of extract in a mixture of twelve parts of water, four parts of glycerin, and four parts of alcohol is preferable.

Purified licorice extract is kept on hand in a fluid form, dissolved in an equal weight of distilled water in completely filled and not too large bottles. The bottle which is in use had better not be closed with a stopper, for cleanliness' sake; a glass capsule or a suitable porcelain ointment pot being inverted over the opening, instead.

Some acids and many alkaloidal salts, the latter previously dissolved in water, should be added only to a very dilute solution of the licorice, because the glycyrrhizin forms with those substances difficultly soluble compounds which render the mixture unsightly, and which become denser as the mixture becomes more concentrated. Mixtures of quinine with licorice are mentioned below.

Extract of opium does not dissolve in mucilage of Irish moss, infusion of marsh mallow, or mucilage of salep, but forms with them peculiar flakes; but if previously mixed with syrup or dissolved in fifty times its weight of water, it makes a nearly clear mixture with those mucilages. Should the physician add to this mixture, besides, *acetate of lead*—a not rare occurrence, the lead salt is to be separately dissolved in fifty times its weight of water before being added.

MIXTURES WITH WATER-SOLUBLE SALTS AND OTHER CRYSTALLINE SUBSTANCES.

Many salts, particularly those in very small crystals or in form of powder, such as Acetate of Potassium, Iodide of Potassium, Chloride of Ammonium, etc., easily dissolve in water without the application of heat. Therefore, they may be simply poured into the mixture and dissolved by shaking. The more difficultly soluble salts, such as Sulphate of Sodium, Phosphate of Sodium, Sulphate of Magnesium, Rochelle salt, etc., are dissolved by the application of heat. If, in addition, decoctions or infusions are prescribed, the solution is effected in the warm strained liquid obtained from the latter. The dispenser, however, must pay attention to the proportion of the quantity of the salt to that of the watery solvent. If the latter be hot, it dissolves more salt than it is able to retain in solution, and a part of the salt subsequently separates in the form of crystals. If this is to be foreseen, the salts must not be dissolved warm, but added in powder to the cold menstruum. This applies especially to Bitartrate of Potassium and Sulphate of Potassium. Borotartrate of Potassium and Sodium must always be added to the watery menstruum. If this salt be first put into the bottle and the menstruum poured over it, its particles at once cohere and form a closely-agglomerated mass which dissolves very slowly and only after oft-repeated prolonged shaking.

Carbonate of Ammonium, when entering into a mixture, must not only be invariably dissolved in cold water, but the finished mixture must be left for one-half to one hour in the open bottle before it is closed. As a rule, some carbonic acid is set free, and if the bottle be at once closed, it is liable to burst.

If, beside the ammonium carbonate, acid substances enter into the mixture, the development of carbonic acid is greater. Among the acid substances should be included also gum arabic and Syrupus Acaciæ, which give rise to a free development of carbonic acid at a temperature of about 20° C. (68° F.). A mixture compounded at a low temperature, for instance at 8° to 10° C. (46° to −5° F.) develops barely traces of carbonic acid. Transferred into a temperature of a highly-heated room in a closely-stoppered bottle, the development of carbonic acid readily takes place, and the bottle bursts. Such a mixture should be heated during the preparation to about 25 C. (77 F.), although there are qualities of gum arabic which do not exhibit an acid reaction toward ammonium carbonate.

Nitrate of silver in solution should be dispensed in dark bottles. The latter must previously be washed and rinsed with distilled and not with spring water, for the latter always contains chlorides which change the clear solution into a turbid one.

In general, the quantity of dissolved substance depends on the temperature of the solvent. The warmer the solvent the more salts it is able to dissolve. There are but very few exceptions to this rule. Caustic lime, for instance, is more soluble in cold than in hot water; in the same way Chloride of Sodium is more soluble in water at 0° C. (32° F.) than in water at 14° C. (58° F.). The variations of temperature in winter must be borne in mind. While in summer 100 Gm. of water are able to retain in solution 35 to 40 Gm. of Sulphate of Sodium, in winter this quantity is reduced to about 25 Gm. at the usual temperature of a living-room in the night time. Therefore, the careful prescription clerk will often have cases in which he should tell the patient or the messenger calling for the prescription, to keep the mixture in a rather warm place.

Chloral hydrate should always be dissolved without heat, otherwise some decomposition occurs, though slight, hydrochloric acid being set free. Hydrochloride of morphine must not be dissolved at a higher temperature than 40° C. (104° F.) in water. With a higher temperature the aqueous solution becomes more or less yellowish in contact with the air.

Many salts often dissolve in greater quantity when several of them are dissolved in one and the same vehicle, or when acids are added. Thus, for instance, Sulphate of Potassium is more soluble in solutions of Sulphate of Magnesium than in pure water There are formed in such cases either easily-soluble double salts or other more soluble compounds. 4 parts of Sulphate of Magnesium, for instance, require for solution 7 to 8 parts of water; but in the following mixture acid is added, thus rendering the sulphate soluble in a smaller quantity of water.

	Gm.	
℞ Magnesii sulphatis.....	75.0	ʒ 19
Acidi sulphurici diluti..	5.0	♏ 70
Aquæ destillatæ.....	75.0	f ʒ 19
Syrupi Rubi Idæi.....	25.0	f ʒ 5

A similar statement applies to crystallized Sulphate of Sodium.

Where salts or other crystalline substances are to be dissolved in alcohol or alcoholic liquids, or mixed with them, they should in all cases be previously rubbed to a fine powder in the mortar. Aiding the solution by heat should be avoided unless it be specially prescribed. Chlorate of Potassium, as well as Permanganate of Potassium, should in all cases be rubbed up by themselves in the mortar, then added to the fluid mixture, and incorporated by agitation.

Where the mixture of several salts leads us to expect the separation of any constituent, the rule is to make the saline solutions as dilute as possible, within the limits of the prescription, because in that case the deposit is generally in a more finely divided condition.

[To be continued.]

A new Method of separating Arsenic from Antimony and Tin.

Some time ago, Fischer proposed to separate arsenic from antimony by converting it into the volatile trichloride by means of ferrous chloride, and then to drive it over by distillation.

F. Hufschmidt, who experimented with this method, has found that not even seven or even ten distillations were sufficient to drive over the trichloride, excepting under certain conditions. And on further pursuing the subject, Hufschmidt found that when certain precautions are observed, a single distillation is under all circumstances sufficient to separate every trace of arsenic.

The principle of this method consists in this, that the solution or liquid containing arsenic (about 0.5 Gm., or less) is diluted with concentrated hydrochloric acid to 250 C.c., then fully saturated with hydrochloric acid gas, and finally distilled under a brisk current of the same. [For the preparation of the hydrochloric acid gas, air-dry common salt and sulphuric acid of spec. grav. 1.600 is employed. If an acid of this density is used, the gas is given off only on warming, so that the current is easily controlled by the application of more or less heat.] The trichloride of arsenic then given off is so exceedingly volatile, that nearly the whole of it passes over before a single drop of condensed liquid enters the receiver. After about 50 C.c. of the liquid have passed over, no more arsenic can be detected in the original liquid.

The enormous volatility of the arsenic trichloride necessitates special precautions. It is absolutely necessary that the gas shall be conducted into a receiver, of about 900 to 1,000 C.c. capacity, containing 300 to 400 C.c. of water or of solution of potassa, of the spec. grav. 1.100 to 1.200. In order to prevent the delivery-tube dipping into the solution of potassa, from being stopped up by the resulting chloride of potassium, causing the liquid to be forced over, a narrow glass-tube, about 11 mm. in diameter and 28 cm. long, is passed through the neck of the flask (receiver) dipping about 10 to 15 mm. into the liquid.

Since the contents of the Woulff's bottle or receiver would become strongly heated after a while, it must be properly cooled off. Hufschmidt has convinced himself that every trace of arsenic trichloride remains in the receiver, no matter whether it is filled with water or solution of potassa. It is, however, preferable to employ the potash solution, as the plain watery liquid is apt to become cloudy when the quantity of arsenic is comparatively large.

If antimony or zinc are present in the original solution, not a trace of them passes over into the distillate, which is probably owing to the fact that only a small portion of the liquid is to be distilled off to separate the arsenic.

The above process is applicable for arsenic as well as for arsenious acids. The arsenic contained in the distillate is precipitated, in the usual manner, by hydrosulphuric acid and weighed as sulphide.

The analytical results quoted by the author are most satisfactory, the quantity of arsenic found varying from that employed by not more than 0.0005 Gm. either way.—After *Ber. d. Deutsche Chem. Ges.*, 1884, 2,245.

Flocculent Deposits in Alkaloidal Solutions.

M. Barnouvin reports experiments to determine whether the deposits in alkaloidal solutions affect the dissolved alkaloid. Solutions of atropine sulphate and morphine hydrochloride in rose water (3 parts of the salt to 1,000 parts of liquid), were kept two months, at the end of which time, the weight of residual salt so closely approximated the original weight of salt that M. Barnouvin concludes that the development of flocks in alkaloidal solutions does affect the quantity or (as ascertained by other experiments), the therapeutic properties of the alkaloid present. The solution at the end of two months manifested considerable flocculence, but, from a medical point of view, the investigator says the flocks do not present greater inconvenience than would any other extraneous matter.

Characterization of Recent Medicinal Chemicals.

DR. VULPIUS, the chairman of the Pharmacopœia Committee of the German Pharmaceutical Association, proposes the following provisional text for characterizing some of the more important recent medicinal chemicals.

1. *Antipyrinum.*

(Antipyrin.)

Colorless, columnar crystals, or, more commonly, a voluminous crystalline powder of a white color, sometimes having a reddish-yellow tint from the presence of traces of iron. Antipyrin (dimethyloxy-chinizin) is odorless, and has a slightly bitter, but not persistent taste. It melts at 110° to 113° C., is soluble in less than an equal weight of cold water, in boiling water almost in every proportion, is also easily soluble in alcohol and chloroform, but requires about fifty parts of ether for solution.

Its aqueous solution is colored red by ferric chloride, and bluish-green by nitrite of sodium; in a concentrated solution, the last-named reagent produces a separation of bluish-green crystals. A bluish-green color is also produced if a few granules of arsenious acid are dissolved, by the aid of heat, in a few drops of fuming nitric acid, and after dilution with one C.c. of water, an equal volume of dilute aqueous solution (1 in 1,000) of antipyrin added.

Antipyrin should have a mild and bitter, but not burning taste, which would be due to accompanying toluol. It should be quickly and completely soluble in two parts of cold distilled water, forming a neutral, colorless or faintly yellowish liquid, which is not altered by hydrosulphuric acid.

2. *Cannabinum Tannicum.*

(Tannate of Cannabin.)

An amorphous, yellowish or brownish-gray powder, indifferent towards litmus, having a very faint odor of hemp, and a somewhat bitter, strongly astringent taste. When heated on platinum foil, it swells up and finally leaves minute traces of a white ash. It is almost insoluble in cold water, alcohol, or ether, and dissolves but little on warming; but it is easily soluble in water or alcohol acidulated with hydrochloric acid. If 0.01 Gm. of the substance are shaken with 5 C.c. of water and 1 drop of solution of ferric chloride, an inky mixture results. If a portion of this substance be digested with warm diluted hydrochloric acid, and the mixture filtered, the filtrate affords a whitish precipitate with alkalies, and is colored brown by iodine solution. When shaken with soda solution and ether, the latter extracts from the compound a substance, remaining behind on evaporating the ether, which has a narcotic odor, and an alkaline reaction.

Tannate of Cannabin should not have a strong narcotic odor, should not leave more than 0.1 per cent of ash when ignited on platinum foil, and should not lose more than 1 per cent in weight when treated with [how much? ED. A. D.] cold water. It must be completely soluble in 10 parts of an alcohol containing 10 per cent of hydrochloric acid.

It should be cautiously preserved.

3. *Cocainum Hydrochloricum.*

(Hydrochlorate of Cocaine.)

A white crystalline powder, of faintly acid reaction, having a slightly bitter taste and momentarily anæsthetizing the nerves of the tongue, which is accompanied by a most characteristic sensation upon the latter.

The salt is easily soluble in water and alcohol, but the aqueous solution is usually a little turbid. Picric acid produces in the latter a yellow, iodine solution a brownish-red, and caustic alkalies a white, crystalline precipitate of cocaine, consisting of microscopic prisms, very difficultly soluble in water, but easily in alcohol and ether. Concentrated sulphuric acid dissolves the substance with the production of much foaming, but without color; nitric and hydrochloric acids also dissolve it to a colorless liquid.

Hydrochlorate of cocaine, when ignited on platinum foil, should not leave any residue, should be soluble in double its weight of water, without producing more than a slight turbidity, and should not be colored by contact with mineral acids.

4. *Paraldehyd.*

(Paraldehyde.)

A clear, colorless, neutral or very faintly acid liquid, of a peculiar, ethereal, but not sharp odor, and a burning and afterwards cooling taste. Spec. gr. 0.992 to 0.998. At a low temperature, it congeals to a crystalline mass, melts at 10.5° C. (51° F.), boils at 123–125° C., is miscible with six times its weight of water at 13° C., and in all proportions with alcohol and ether. The aqueous solution becomes cloudy when heated. When cooled to 10° C. (50° F.), paraldehyde becomes solid upon agitation; with 10 parts of water it should form a clear mixture without afterwards separating oily droplets of paraldehyde upon the surface. A mixture of 1 C.c. of paraldehyde with 1 C.c. of alcohol, when mixed with 1 drop of standard solution of soda, should not have an acid reaction.

Paraldehyde should be preserved cautiously, in glass-stoppered bottles, which should be completely filled, and should be protected against the light. —*Pharm. Post.*

Note.—The *Pharm. Journal*, in commenting upon the recommendation of Pharmacopœia Committee of the German Pharmaceutical Association, to incorporate the above four new remedies into the next edition of the German Pharmacopœia, draws attention to the fact that one of them is protected by a patent, and that two others are specialties of a particular manufacturer. In this country, the recognition of patented or proprietary medicines in the official pharmacopœia would, under no circumstances, be tolerated; and it is quite probable that the same consideration will prevent the *official* recognition of these substances in Germany, until the proprietary character has been removed from them.

Thalline: Another new Antipyretic.

THE reputation of antipyrin, recently introduced as a new therapeutic agent for lowering febrile temperature, has scarcely had time to become fully established, when another claimant makes its appearance, being a derivative of chinoline or quinoline, which has already yielded several other substances interesting to the medical profession.

On October 31st, Dr. v. Jaksch made a report, in a meeting of the Vienna Medical Society, on the results obtained with a new antipyretic which had been tested in a large number of cases in Prof. Nothnagel's clinic. In the course of a series of a trials made with a number of new synthetical chinoline-bases prepared by Prof. Skraup, the reporter came across this substance, which is a secondary chinoline-base, and is, in chemical language, the tetra-hydro-para-chin-anisol. Its salts are all easily soluble in water, have an acid reaction, and yield *green* salts when mixed with solution of ferric chloride and oxidizing substances. This latter property induced Skraup and Jaksch to adopt for the substance the *alias* "thalline." Jacksh examined three thalline salts, namely the hydrochlorate, sulphate, and tartrate; also the hydrochlorate of ethylthalline (a derivative of the primary base). He found that these substances, in doses of ¼, ½ to ¾ Gm. (4, 8 to 12 grains) produce a powerful antipyretic effect. It would appear, however, from Dr. Jaksch's remarks, that he does not place much importance upon any of the new antipyretics, such as kairine, chinoline, and even thalline, which *only* lower temperature. Thalline has this advantage over kairine and chinoline, that it does not, when administered, produce any disagreeable secondary effects.—*Pharm. Post.*

Products of the Dry Distillation of Wood at Low Temperatures.

THREE samples of crude methyl alcohol, prepared in the manufacture of acetic acid by the dry distillation of wood at low temperatures, were examined; they were collected (*a*) at the beginning of the distillation, (*b*) after several hundred gallons had distilled, and (*c*) when the distillation of methyl alcohol was well advanced. These samples were subjected to fractional distillation. The most volatile portion in each case was proved to be acetaldehyde. The fraction boiling at 25–40° from (*a*) was shown to contain methyl formate, which has not hitherto been recognized as a constituent of wood-spirit, the presence of methylal could not be determined. The fraction 50–54° from (*a*) gave reactions for aldehyde and acetone, and fractions 54–56° from (*a*) and from (*b*) were nearly pure methyl acetate. The bulk of the methyl alcohol was found in fraction 65–68° from (*c*). Dimethylacetal could not be detected. The amount of acetone—which affects the value of wood-spirit for preparing dimethylanilin — was determined in several portions by Kramer's method; the amount found, varying from 1.04 to 3.41 per cent, is smaller than is usual in wood-spirit. Allyl alcohol could not be detected. For want of material, the high boiling oils were not completely examined; they contain furfuraldehyde, pyroxanthine in small quantity, as also methyl ethyl ketone and allyl acetate.—C. F. MABERY, *Am. Chem. J.* and *J. Chem. Soc.*

Solubility of Lime in Water at Different Temperatures.

AFTER referring to the numerous conflicting statements, made by various eminent authorities, with regard to the solubility of calcium hydroxide in water, Mr. T. Maben proceeds to describe his method of investigating this subject and its results. Pure calcium oxide is slaked with distilled water. The slaked lime and water are left in contact in a flask in a bath, which is kept at a definite temperature. When the lime and water is of the required temperature, the mixture is filtered through a funnel kept at the same temperature. Thermometers were used in the funnel as well as the flask. The results are as follows:—

Temperature.	Parts of water to dissolve 1 part CaO.	Temperature.	Parts of water to dissolve 1 part CaO.	Temperature.	Parts of water to dissolve 1 part CaO.
0°	759	35°	909	70°	1235
5°	764	40°	932	75°	1313
10°	770	45°	985	80°	1362
15°	779	50°	1019	85°	1388
20°	791	55°	1104	90°	1579
25°	831	60°	1136	95°	1650
30°	862	65°	1208	99°	1650

In addition to this effect of temperature, the presence of calcium carbo-

nate also interferes with the solubility of calcium hydroxide; hence it is important, when lime-water of definite strength is required, as in pharmaceutical purposes, that the lime should be kept out of contact with the air, if it is to be employed for the preparation of lime-water; the latter should also be kept in a well-stoppered bottle. One part of calcium carbonate is soluble in 40,000 of water, giving it a distinctly alkaline reaction.—*Phar. Journ.*, *14,505*, and *Journ. Chem. Soc.*

Carbon Bisulphide as an Antiseptic.

In a communication to the Academy of Sciences (*Comptes Rendus*, xcix., 509) on the antiseptic properties of carbon bisulphide, M. Ckiandi Bey points out that, contrary to the statements generally found in works on chemistry, it is soluble in water at a temperature of 64° to 68° F. (18° to 20° C.) to the extent of 2 to 3 parts per 1,000. This solution arrests all fermentation, kills microbes, and is a most energetic antiseptic; it also has considerable penetrating power. When the solution is taken internally, it produces a hot and sweet taste in the mouth, then a sensation of heat in the stomach and pricking of the mucous membrane of the nose, similar to that caused by sulphurous acid, and slight dulness in the head, which, however, is not lasting. For these reasons the author recommends its use in cholera and all zymotic diseases, typhus, diphtheria, phthisis, etc. It has already been experimented with by Dr. Dujardin Beaumetz, who found that in case of typhus the diarrhœa was arrested, the stools disinfected, and the breath rendered sweet. As the cost of the solution is extremely small, M. Ckiandi Bey suggests that it might be used for watering the streets and cleansing houses, etc. For medicinal use it is necessary that the sulphide should be purified by agitation with metallic mercury until it no longer gives a black precipitate. It then has an odor which recalls that of chloroform. The solution can be made by energetically shaking the sulphide with water. Externally applied to the skin by means of a wad of cotton, it proves a most energetic revulsive, producing a pain like that by scalding with boiling water, which immediately ceases when air is blown upon the skin, so as to vaporize the sulphide remaining on it. An alcoholic solution slowly decomposes, giving rise to sulphuretted hydrogen and other compounds.—*Pharm. Journ.*

Cinchona in India.

The present stock of 4,740,811 cinchona trees on the government cinchona plantations in Bengal, is at present undergoing an alteration in so far as it is the intention of increasing the number of Calisaya trees. Among the latter is reckoned the C. Ledgeriana (which is perhaps an independent species), and two new species, "verde" and "morada" which have lately been procured from South America by the Secretary of State for India. The percentage of quinine in these two new species is reported to be larger than that in C. succirubra. The young plants of the two new sorts, however, have suffered from the climate. During the past year 305,160 pounds of bark was collected, of which 283,240 pounds came from succirubra bark. Most of the bark was used in the country itself for the preparation of the febrifuge, of which on an average 2.728 per cent were obtained, and which cost the government 10¼ rupees (about $4.90) per pound. This product is deprived of most of the nausea-producing alkaloids, and is in form of a crystalline powder.

Cinchona lancifolia, which yields the so-called hard Carthagena bark, has perished, all but one single tree. On Remijia, which yields Cuprea bark, no report can be made as yet.

The government strives to promote the cultivation of cinchona by the free distribution of good seeds. This encouragement is quite proper, since the financial results are very satisfactory, yielding to government a revenue equivalent to five and one-half per cent of the capital invested, without taking into consideration the saving caused by the diminished purchases of sulphate of quinine. The sums saved on the latter are already now estimated at double the amount of the original capital invested in the enterprise.—*Pharm. Zeit.*

The Last Year's Harvest of Cinchona Bark in Ceylon.

Some months since we quoted from the Ceylon *Observer* an estimate that the export of cinchona bark from Ceylon would, during the next few years, amount to 8,000,000 to 10,000,000 lbs. annually. This estimate was in some quarters looked upon as an exaggeration, but the latest returns show that in the twelve months ending the 30th of September last, that quantity was exceeded, and reached the enormous total of 11,491,947 lbs.; the shipments during the last month of the season having exceeded one million pounds. It is probable, however, that this large output is the result of financial pressure which has existed in the island of Ceylon, and that it does not represent a normal harvest of bark. Our Ceylon contemporary expresses an opinion that any bark sold at under sixpence per lb. in the London market would fail to remunerate the producer, but adds that it will not be the average of cinchona trees planted, nor the age and quantity of the bark available, nor even the demand and price in the home market, so much as the financial condition of the planter, which will in Ceylon, for some years, have chiefly to be considered in making up estimates. Of the 11,491,947 lbs. exported, 9,130,826 lbs. were sent to England, 435,541 lbs. to Marseilles, 969,082 lbs. to Genoa, 863,529 lbs. to Venice, 6,946 to America, and the remainder to other countries. —*Pharm. Journ.*

The Solubility of Glass.

Prof. Bohlig makes a communication to the *Zeitschrift für Analytische Chemie* (1884, 518) on the solubility of glass, which presents the most remarkable instance ever brought to notice. Some time ago the author made his usual annual purchase of new stock of glassware, etc., for the use of his laboratory, from the well-known firm Fr. Walther, in Stützerbach, all of which purchase was at once put away ready for use.

While making some water analyses, Prof. Bohlig noticed that water, after having been apparently saturated with $\frac{1}{10}$ normal solution of oxalic acid, when boiled for only 1 second longer in one of the new flasks, acquired an alkaline reaction, as was shown by the change of color in the indicator, and this recurred each time after renewed saturation and reboiling.

Some of the new flasks were now tried with distilled water, and it was found that 100 C.c. of it, on boiling, dissolved during every 2 seconds enough alkali to saturate $\frac{1}{10}$ C.c. of the above reagent, and that this solution went on without stoppage. Not only the flasks, but every other glass utensil of the same invoice turned out to have the same defect.

Prof. Bohlig became alarmed, because the suspicion presented itself that analyses previously performed might have been made in glassware of similar bad qualities, but a careful examination proved this suspicion unfounded.

Some samples of this invoice were sent to Prof. Fresenius, who confirmed the statements of the author.

Since it is possible that some of this glassware may have found its way to this country, we would advise importers of chemical ware, and those who have to make use of the same, to carefully examine their stock, as an analysis laboring from such an error is liable to lead to disagreeable results.

Cultivation of the Coca Plant in the United States.

In view of the undoubted importance and value of the alkaloid cocaine as a local anæsthetic, it is fair to presume that the supply of coca from its native home, in the Eastern Andes of Bolivia, Peru, and Ecuador, which is estimated at about thirty-five millions of pounds annually, will be insufficient to satisfy the demand. The by far greatest portion of this quantity is consumed at home, and only a comparatively small portion has heretofore been exported. But as coca yields never over one-fourth of one per cent, and is said to yield sometimes only about one-sixtieth of one per cent of cocaine, it is easy to see that it requires a very large amount of crude material to produce the quantities of alkaloid likely to be required.

If ever there was an argument in favor of manufacturing an article of this kind in its native country, such an argument is supplied in the case of coca.

Coca leaves occupy a considerable bulk and are moreover liable to deterioration by long keeping, bad stowage during the sea-voyage, etc. If an enterprising firm were to locate proper works in a suitable place in South America, as close to the main source of supply as possible and with easy facilities for export, large amounts of crude cocaine, or at least an extract of coca could be manufactured on the spot which might be forwarded to this and other countries for further purification. The great saving of expense in freight and the enriched quality of the extract or crude alkaloid, owing to the fresher raw material employed, would no doubt far overbalance the first expense of the undertaking and the cost of shipment, together with any custom duties and the further cost of purification.

Another means of obtaining the crude material with more facility, would be to cultivate the coca plant in this country. Probably, however, there will be met with the same difficulty as has been encountered when attempting to cultivate cinchona. Coca flourishes in its home at altitudes between five thousand and six thousand feet over the level of the sea, and is chiefly found in the warm valleys of the *eastern* slopes of the Andes, where almost the only variation of climate is from wet to dry, *where frost* is *unknown*, and where it rains more or less every month of the year. If such a locality can be found in the United States, it will be of the highest importance to try the cultivation. Should no such place be discovered in this country, it is highly probable that Mexico will offer numerous suitable localities.

Disinfectants Disinfected.

The *Lancet* quotes from an Italian journal a statement that two wagons laden with chloride of lime and carbolic acid, on their way from Switzerland to Italy, were stopped at Cheasso, a station of the sanitary cordon, the officials refusing to make any exception in carrying out the peremptory orders that had been issued, that all imports should be disinfected. It is not stated whether either or both of the consignments were utilized, or whether a local store of disinfectant was drawn upon in this *reductio ad absurdum* of the quarantine regulations.—*Pharm. Journ.*

Formic Acid a Preservative for Honey.

SOME time since Dr. Müllenhoff arrived at the conclusion that in sealing honey cells, bees add formic acid to the honey by thrusting the abdomen with the sting protruding and a minute drop of poison adhering into the half-closed cells. The honey taken from sealed cells is said to be much more stable than that taken from unsealed cells, and Dr. Müllenhoff attributed this to a difference in respect to its contents in formic acid, which is known to be a powerful antiferment. He, therefore, treated 100 grammes of unsealed honey with 0.1 gramme of formic acid and preserved it and the same quantity to which no acid had been added under similar conditions; after a time it was found that the first sample remained unaltered, whilst the second was undergoing fermentation. He, therefore, proposes to make a technical application of this observation by adding the formic acid to the unsealed honey, and thus sparing the bees the time and labor involved in sealing the cells. Dr. Müllenhoff states that one part of 25 per cent acid is sufficient for 250 parts of honey.—*Pharm. Journ.*

The Existence of Ammonium Hydrate denied.

IT is generally held that solution of ammonia contains the latter in form of ammonium hydrate NH_4OH, a cold saturated solution of which has a specific gravity of 0.912, and contains 23.226 per cent of ammoniacal gas. Even supposing that the ammonium hydrate did exist, and that it were constituted analogous to potassium hydrate, it is a very unstable compound, since the ammoniacal gas is readily eliminated by exposure to, or the passage of a current of air.

Prof. J. Thomsen, of Copenhagen, deduces from physical and thermic experiments that such a compound as ammonium hydrate does not exist. He has arrived at this result by several methods independent of each other. For instance, if the heat-units are calculated which are set free when soluble hydrates are dissolved, and if these figures are compared with the heat-unit observed during the supposed formation of the ammonium hydrate, it will be found that theory agrees with the fact in every case but that of the ammonium.

		Heat of Combination (on solution)	
		calculated	found
Sodium	Hydrate,	77.7	77.6
Lithium	"	83.4	83.3
Thallium	"	20.4	20.0
Calcium	"	150.6	150.1
Barium	"	$28.4+x$	$20.8+x$
Strontium	"	158.6	158.2
Ammonium	"	54.2	21.

From this it follows that the composition of the water of ammonia differs from that of a solution of alkalies.—*Comptes Rend.*, 98, 812.

The Quantitative Determination of Morphine in Opium.

FROM 10 to 20 Gms. of the sample in question, divided as finely as possible, are boiled for a short time with 15 to 30 Gms. caustic baryta and about 150 to 200 C.c. water. The solution is separated by decantation and filtration from the residues, and the latter are boiled repeatedly with small quantities of hot water until a portion of the solution on evaporation no longer gives the reaction of morphine with molybdic-sulphuric acid. In this process too frequent a repetition of the extraction should be avoided, and the volume of the filtrate will not be generally more than 400 to 500 C.c. Through this solution, which contains all the morphine, is passed a current of washed carbonic acid until the liquid is supersaturated with the gas, and the entire mass is evaporated to dryness in a capsule on a water-bath as quickly as possible.

The residue is moistened with absolute alcohol, removed from the capsule by means of a sharp spatula, introduced into a glass flask, and extracted with boiling absolute alcohol until a portion of the extract, evaporated to dryness on a watch-glass, no longer gives a distinct morphine reaction with molybdic-sulphuric acid. For this purpose 300 to 400 C.c. are generally required. The clear, alcoholic filtrate is freed from alcohol by distillation in a small flask. When the volume of the liquid has been much reduced by pouring back the alcohol and distilling again, the residue of the alcohol is completely expelled by placing the flask in a boiling water-bath.

The residue in the flask is resinous and sticky, of a yellowish-brown color. About 15 C.c. water are added, which has been mixed with a little ammonia, and the whole is allowed to stand for some time. The dark resinous mass takes a light-brown color, and solidifies by taking up water. The transformation is promoted by stirring and rubbing with a glass rod covered with caoutchouc. The mass is then decanted through a small tared filter, and the finely divided precipitate is brought upon the filter by repeatedly pouring back the filtrate. Finally it is washed with a little ammoniacal water, large volumes of liquid being avoided.

The filter is dried at 40°, and placed in a glass funnel which can be closed below. There is then poured upon it pure chloroform free from alcohol, which is left in contact with the contents of the filter for a considerable time; the tap is then opened and the chloroform run off. A fresh quantity is then poured on in its stead, and the operation repeated until, if a portion of the almost colorless solvent is evaporated on a watch glass, the residue dissolved in diluted hydrochloric acid, and the solution mixed with caustic soda-lye, merely a trace of turbidity appears; from 3 to 5 C.c. of the chloroform solution are suffieient for this purpose.

The filter is dried and weighed, and the product obtained is crude morphine. Its color should be from a light-brown to a straw-color. It contains no narcotine, and is in many cases so pure that if covered with hydrochloric acid it dissolves with a yellow color, and the solution, if shaken, congeals at once from the formation of morphine hydrochlorate.

In all cases, however it requires to be purified. To this end the smallest possible quantity of very dilute acetic acid is poured upon the filter containing the crude morphine. If the weight of the crude morphine is from 1.0 to 1.5 Gm., a mixture of 1.5 to 2 C.c. of acetic acid at 20 per cent, with 20 to 25 C.c. of water, will be sufficient. In order to promote the solution of the morphine as acetate, the dilute acid may be heated to 30° to 50°. The filtrate is poured back several times into the filter, so as to dissolve all morphine. The filter is finally washed with 5 C.c. of water, and the yellowish-brown filtrate is mixed with a few drops of a solution of potassium ferrocyanide, filtered again through the same filter, and washed with about 20 to 25 C.c. of water. The total volume must not exceed 50 to 60 C.c. The solution obtained is rendered alkaline with ammonia, and let stand for twenty-four hours. The crystalline morphine is collected on a dried tared filter, washed with ammoniacal water, dried at 102°, and weighed.—DR. VON PERGER, in *Journ. f. prakt. Chem.* and *Chem. News.*

Expedients for Rendering Photographic Films Sensitive to Green, Yellow, and Red Rays.

SILVER tetrabromofluoresceïn is not decomposed by dilute acetic acid. It is remarkably sensitive to greenish-yellow rays. If a cadmium bromide collodion plate containing eosin is immersed in a silver solution, its sensitiveness to blue rays is very much diminished, and the action of the yellow rays is greatly increased. The addition of eosin to the collodion silver bromide containing a small quantity of silver iodide, produces a film which is sensitive to yellow and to blue rays.

In photographing colored objects, a yellow glass is introduced between the object and the apparatus, in order to diminish the action of the blue rays. With such an arrangement, Schweinfurt green and yellow appear light. The action of orange and red rays may be increased by adding methyl violet or aldehyde green respectively to the silver bromide collodion.

Wet gelatin plates containing eosin are much more sensitive to yellow rays than the dry plates. —H. W. VOGEL, *Berl. Ber.* and *Journ. Chem. Soc.*

The Specific Gravity of pure monohydrated Sulphuric Acid.

BINEAU found (1848), as many others before and after him, that the spec. grav. of pure sulphuric acid, obtained by evaporation, was 1.842 at 15° C. in vacuo, compared with water at its maximum density, 4° C. [This is usually now expressed thus: at $\frac{15°}{4°}$.] Marignac, however, in 1853 showed that evaporation does not remove all the water from sulphuric acid, and, after having prepared the monohydrate by means of sulphuric anhydride he found for pure H_2SO_4 a smaller number than before, namely 1.837 at $\frac{15°}{4°}$. It was plain, therefore, that pure monohydrated sulphuric acid increased in specific gravity both by the addition of a little water, and by that of a little sulphuric anhydride. All data requisite for arriving at this conclusion were already in the possession of Meissner and Gerlach (*Spec. Gew. d. Salzlösungen*, 1859, 37). But the fact was first clearly announced by F. Kohlrausch (*Pogg. Annal.* (1876), vol. 159, 240, 243. Also *Ergänzungsband*, (1878), viii., 675); and afterwards by A. Schertel (*Journ. prakt. Chem.*, 1882, vol. 26, 246).* It appeared also that the seemingly insignificant difference between the specific gravities 1.842 and 1.837 depended upon the fact that the most concentrated acid is more prone to dissociate than one slightly hydrated. Some time in 1883, Lunge and Næf published the results of some of their investigations, in which they give the spec. grav. of pure sulphuric acid as 1.8384 at $\frac{15°}{4°}$ in vacuo. This figure differs so much from those of other observers (three of whom differ only by the allowable variations of 0.0002, namely Marignac 1.8372, Kohlrausch 1.8373, Schertel 1.8371) that Prof. D. Mendelejew determined to reinvestigate the subject, and to ascertain the probable causes of the error in Lunge's and Næf's determinations. Without dilating on the latter subject, which is uninteresting to any except those specially engaged in similar researches, we will merely state that Mendelejew finds the figure 1.8371 at $\frac{15}{4°}$ in vacuo as being nearest to the true specific gravity of pure monohydrated sulphuric acid.—*Ber. d. Deutsch. Chem. Ges.*, 1884, 2,536.

* See NEW REM., 1883, 81.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for information respecting an unusual or proprietary compound, always accompany the query with all the information you may possess respecting it, and, when it can conveniently be done, send a specimen of the label.

No. 1,392.—**Quinine Assay** (Laboratory).

The methods proposed some time ago by Byasson are briefly as follows (after abstract in *Journ. Chem. Soc.*):

Method I.—This is a modification of the method of the French code. An ordinary test-tube of about 15 mm. diameter is graduated with one mark (*a*) to hold 6 C.c.; a second mark (*b*) is then made above this to indicate 2 C.c. from the first mark. 0.5 gramme of the quinine sulphate is introduced into the tube, and then washed ether added to the mark (*a*); sufficient solution of ammonia (0.9–0.950), is finally added to exactly reach (*b*). The tube is then fitted with an air-tight cork and well shaken. If the quinine sulphate be pure, no trace of a flock or crystal will be visible between the layers after the liquids have separated. This method is capable of detecting from 3–4 per cent of cinchonine sulphate, 4–5 per cent of quinidine sulphate, and from 5–6 per cent of cinchonidine sulphate.

Method II.—In this method, Laurent's polarimeter is used. 0.5 gramme of quinine sulphate is placed in a flask graduated to 50 C.c., and dissolved by the addition of dilute sulphuric acid (2 per cent by volume). In this way, a one-per-cent (by volume) solution of quinine sulphate in dilute sulphuric acid is obtained. The 22 Cm. polarimeter tube is filled with the solution, and the rotatory power of the liquid determined. Commercial quinine sulphate should possess, at 15°, a rotatory power of not less than −22° on the saccharimetrical scale.

When the deviation is less than −21.8, the quinine sulphate should be chemically examined by the first method. The following are the rotatory powers in saccharimetrical degrees of one-per-cent (by volume) solutions of the pure sulphates of the cinchona alkaloids. The observations were made in the 22 Cm. tube of Laurent's polarimeter:—

Quinine Sulphate	−23.3°
Cinchonidine Sulphate	−16.5°
Quinidine Sulphate	+26.4°
Cinchonine Sulphate	+22.2°

Commercial quinine sulphate shows a deviation of −22°. A deviation of −21.8° indicates the presence of about 5 per cent of cinchonidine sulphate, and a deviation of −20° about 10 per cent of cinchonidine sulphate.

[*Note.*—Regarding the polarimetric method, we would add that we have no confidence whatever in its results, unless supplemented or corroborated by chemical tests. The values or rates of deviation found mostly permit only the conclusion that the examined alkaloid is practically pure, or else impure.]

No. 1,393.—**Butter-Analysis** (H. D.).

Public analysts have for some time past recognized the necessity of agreeing upon uniform methods of analysis and reports of results, if an intelligent use is to be made of the latter. The Bavarian representatives of applied chemistry have now also adopted this principle and have lately agreed on the following uniform scheme of analysis of fresh or melted butter, which we translate from the *Schweiz. Wochensch. f. Pharmacie*, Oct. 17th, 1884, and which we can recommend to you as covering the ground satisfactorily.

I. METHOD OF ANALYSIS.

a. Amount of Water.—Dry 10 Gm. of butter during 6 hours on a watch-glass (or flat-bottomed capsule) with very frequent agitation. [If mechanical agitation can be employed, so much the better].

b. Amount of Butter-Fat.—Five Gm. of the butter are melted in a porcelain capsule, mixed with 20 Gm. of plaster of Paris, then dried for 6 hour. at about 100° C., and the resulting mass, when reduced to powder, exhausted with absolute ether.

c. Mineral Constituents.—Weigh 10 Gm. of the butter in a porcelain crucible, and dry, under frequent agitation, for 6 hours at 100° C. The melted, dry fat is filtered in a drying oven through a filter, the capsule and filter repeatedly washed with ether, the filter with contents replaced in the crucible and incinerated. If the ash is more than 0.5%, it must be subjected to a detailed assay, primarily for common salt, which is done by applying the proper reagents to the filtrate obtained by dissolving the ash in enough water to make 100 C.c. of solution.

d. Foreign Fats.—Five Gm. of the melted, clear-decanted, and filtered butter-fat are mixed in a flask of the capacity of 300 to 350 C.c. with 10 C.c. of an alcohol solution of potassa (20 Gm. of pure potassa in 100 C.c. of 70% alcohol) and the flask set upon a boiling water-bath until the contents are saponified. When the solution is clear, the alcohol is evaporated off, which is facilitated by blowing air through the liquid, the soap is dissolved in 10° C.c. of water, and to the solution are added 40 C.c. of diluted (1:10) sulphuric acid. The whole of this liquid is now mixed (in a flask or retort fitted with condenser) with small pieces of pumice, and exactly 100 C.c. distilled off. Of this amount 100 C.c. are filtered off, and titrated with $\frac{1}{10}$ volumetric solution of soda, rosolic acid or phenol-phthalein being used as indicators. The amount of C.c. of the reagent consumed is then increased by one-tenth, corresponding to the total amount of the distillate.

II. CRITERIA.

a. Butter of good quality should not contain more than 15% of substances not fat. If it contains 20% or over, it is no longer marketable.

b. In the test given above under *d* (Foreign Fats) not less than 26 C.c. of the $\frac{1}{10}$ soda solution should be required for 5 Gm. of butter (according to Reichert and Meissel). This limit does *not* hold good in the case of overheated butter-fat.

c. It is not practicable to exactly state the quantity of the added foreign fats.

d. The nature or source of the foreign fats is but rarely recognizable.

III. INSTRUCTIONS.

Samples must be taken from different portions of the suspected butter, from the surface, the middle, and the bottom. The samples must be preserved in porcelain or well-glazed stone pots.

No. 1,394.—**Warburg's Tincture** (O.).

It is safe to say that most manufacturers do not use the complicated and irrational formula, originally devised for this preparation. Particularly is it more than doubtful whether any of them use the Confectio Damocratis as one of the constituents (we gave a full list of the ingredients contained in this confection, as well as in the tincture, as originally devised by Dr. Warburg, in NEW REM., 1878, p. 248). The idea of the originator was undoubtedly to combine the quinine with a vehicle having carminative and stomachic properties. We think he might just as well have selected some Eastern chutnee or even Worcestershire sauce as a vehicle.

A very commonly-used, abbreviated formula is the following:

Aloes, Socot	120 grains.
Confection of Rose	30 "
Rhubarb	30 "
Angelica Seed	30 "
Elecampane	15 "
Saffron	15 "
Fennel	15 "
Precipitated Chalk	15 "
Gentian	8 "
Zedoary	8 "
Cubebs	8 "
Myrrh	8 "
Camphor	8 "
Sulphate of Quinine	75 "
Diluted Alcohol	q. s.

Powder the drugs, except the Confection of Rose, Chalk, and Quinine, and percolate them with diluted alcohol until one pint of tincture is obtained. Reduce the Sulphate of Quinine to a fine powder, add the Confection of Rose, and triturate the whole with the tincture previously obtained, using a very gentle heat in a covered vessel, to cause the quinine salt to be dissolved. Allow to cool, mix intimately with the Precipitated Chalk, and after 24 hours filter.

No. 1,395.—**Naphthalin as a Surgical Dressing** (B. W. S.).

Naphthalin has been of late quite extensively used in Bellevue Hospital as a substitute for the expensive iodoform, for the antiseptic dressing of wounds. In stating this, we do not wish to anticipate any reports of results obtained by the surgeons connected with the institution. We merely wish to inform our readers that the best results are obtained if the naphthalin is reduced to powder. Now, the pure, imported, sublimed naphthalin, which is in glittering unctuous scales, cannot be well reduced to powder, except when very cold. The less pure, domestic naphthalin, however, of which the only makers in the United States, so far as we know, is the New York Coal Tar Chemical Company, 10 Warren street, can be reduced to a moderately fine powder, which, as mentioned in another place in this number, is best treated with a minute proportion of oil of bergamot to disguise the odor.

After being reduced to powder, it is apt to cake together after awhile, particularly when kept in a warm place. But a supply for a day or two may always be kept in stock.

It is not unlikely that combinations of

Iodoform and naphthalin,
Naphthalin and boric acid,
Iodoform and boric acid,

or all three combined, will be employed for similar purposes, and that the intervention of boric acid will permit the preparation of a permanent fine powder. On this subject we will have to say more after we have witnessed the experiments soon to be undertaken.

No. 1,396.—**To Mask the Odor of Naphthalin** (B. W. S.).

Naphthalin, no matter how carefully purified and sublimed, always has a characteristic odor, the most exact description is given by mentioning the odor in or about gas-houses. To many persons it is very disagreeable. It may be entirely overcome by adding to about 4 oz. of the naphthalin (in powder) a few drops of *oil of bergamot* and triturating. The two odors then blend together, and form a new and characteristic scent, which is quite agreeable and distinct from any other we are acquainted with.

No. 1,397.—**Glabrina** (O. A.).

This name was given by a few persons to what is now officinal in the U. S. Ph. under the title Glycyrrhizinum

ammoniatum, or ammoniated glycyrrhizin. We refer you to the U. S. Ph. for information.

No. 1,398.—**Florida-water** (Multum).

We have several formulas on file, of which the following is probably the best:

Oil of Bergamot	2 drachms.
" Lavender, Mitcham	2 "
" Lemon	2 "
" Neroli	10 drops.
" Rose	1 drop.
Orange Flower Water	3 oz.
Rose Water	3 "
Cologne Spirit	2 pints.

No. 1,399.—**Benzol and Bromine; Hydrobromic Acid** (M.).

All halogens are capable of replacing one or more of the hydrogen atoms in benzol (C_6H_6). Under certain circumstances, however, addition-products are obtained.

For instance, chlorine gas passed through benzol while exposed to sunlight or passed through boiling benzol, forms an additional product: benzol hexachloride, $C_6H_6Cl_6$. But if chlorine gas is passed through benzol containing iodine, chloride of antimony, or pentachloride of molybdenum, or chloride or bromide of aluminium, or of zinc, substitution-products are formed, the chlorine displacing some of the hydrogen, which combines with free chlorine to hydrochloric acid.

With bromine, benzol yields, on exposure to sunlight, benzol-hexabromide, $C_6H_6Br_6$; a mixture of bromine and benzol exposed to diffused light, however, develops chiefly benzol-monobromide, C_6H_5Br. On heating bromine with benzol, particularly in presence of a little iodine, substitution-products are produced, but these are most easily and energetically formed if some bromide of aluminium is present. In this case, hexabromobenzol, C_6Br_6, is formed even at 0° C. (32° F. if benzol is added slowly to an excess of bromine containing some of the above salt.

In what special manner the presence of this or of other salts brings about the energetic action is not yet quite understood.

This last-named reaction could be utilized for the preparation of hydrobromic acid on a large scale.

Iodine alone does not react with benzol even when heated. That iodobenzol cannot be thus produced is shown by the fact that hydriodic acid when brought in contact with iodobenzol regenerates the benzol. But iodine substitution compounds may be formed by heating benzol with iodine and iodic acid.

The chief point in the preceding resumé (based chiefly upon Laubenheimer) of interest to you is the formation of hydrobromic acid. It should be a comparatively easy matter for you to try the process on a moderate scale.

No. 1,400.—**Opium, Pharm. Mex. II.** (Gonz.).

The new Mexican Pharmacopœia prescribes that opium for pharmaceutical purposes should contain at least 10% of morphine. An upper limit is not declared. The process of assay there given, which is merely stated to be the one most generally used, is as follows:

Fifteen Gm. of opium, in small pieces, are extracted in a mortar with 60 Gm. of alcohol of 71%, the liquid is expressed, and the residue again extracted with 40 Gm. of the same alcohol. The united liquids, in a wide-mouthed flask, are treated with 4 Gm. of water of ammonia (sp. gr. 0.920), and set aside for 24 hours. At the end of this time, the morphine and narcotine have crystallized out. The liquid is poured off, the crystals washed, first with water, to remove any adhering meconate of ammonium, and afterwards with ether to dissolve the narcotine. The residue is then dissolved in boiling 90% alcohol, the solution filtered and set aside to crystallize. Finally the residue is dried and weighed.

[In our opinion and experience, this is not the best process that could have been adopted. Particularly the last operation, dissolving the morphine in boiling alcohol, and allowing it to crystallize, causes loss, which may, however, be made up by applying a correction for the amount of morphine remaining in solution. But even the exhaustion of the original opium is not completed by two treatments with alcohol.]

No. 1,401.—**Syrup of Chlorhydrophosphate of Lime (or Calcium)** (E. J.).

This is officinal in the French Pharmacopœia, under the title *Sirop de Chlorhydrophosphate de Chaux* (Syrupus cum Chlorhydrophosphate calcico):

	Grammes. Parts.
Phosphate of Calcium	12.5
Hydrochloric Acid (sp. gr. 1.171)	q. s.
Distilled Water	340
Sugar	630
Spirit of Lemon	10

Carefully mix the phosphate of calcium with the distilled water to a uniform milk, then add just enough (about 8 Gm. or parts) hydrochloric acid to dissolve the salt; next add the sugar, in coarse powder (granulated), and dissolve with a gentle heat. Filter, and add the spirit of lemon.

The phosphate of calcium is the dicalcic phosphate obtained by precipitating the officinal phosphate of sodium with chloride of calcium. The spirit of lemon is prepared by macerating 1 part of fresh lemon peel with 2 parts of alcohol of 80% for eight days.

No. 1,402.—**Rapid Bleaching of Fats and Oils** (Natchez).

We believe the following abstract of a paper by M. Herzog in the *Techniker* will give you the desired information.

Fatty oils and solid fats are subjected to a preliminary treatment by being mixed in large vats with 2–3% of common salt and 25–30% of cold water, and being well agitated for about 10 minutes. After standing at rest for 24 to 48 hours, a portion of the impurities has separated together with the water and salt. The supernatant oil is then removed to another vat, and there once more thoroughly agitated with a fresh lot of cold water. After some 6 or 8 hours, the oil is again separated, and is ready for further treatment. This preliminary washing with salt and water is said to be specially valuable and important in the preparation of fine table oils, but may also be used in the case of linseed, cod-liver, and other oils. If a current of electricity (so says Mr. Herzog) be conducted, during the mechanical agitation, through the mixture of oil, water, and salt, the oil becomes at the same time bleached, owing to the decomposition of the chloride of sodium and the formation of strongly bleaching secondary compounds. [The author gives no working details for this portion of the process.]

In the case of fats or oils which are prone to become rancid, it is advisable to add 2 to 3 per cent of bicarbonate of sodium during the preliminary treatment. Instead of washing the oil for the second time with cold water, it may also be treated with steam conducted into the oil in a fine spray, the average time of such treatment for cotton-seed oil being 5 to 10 minutes, for rape-seed oil 15 to 20 minutes, and for fish-oil 30 minutes. By this treatment, the rancid constituents are removed, while the mucilaginous portions are precipitated. In place of steam, heated air may be blown through the oil, previously mixed with 20% to 30% of hot water, for 5 minutes at a time, with intervals of 2 to 3 minutes. If the oil thus prepared is now again filtered and allowed to stand for some time, a pure product of agreeable, sweet taste, and light, pale-yellow color is obtained. For filtration, endless filtering paper is to be preferred. This is laid upon the bottom and over the ribbed sides of the filtering vessel. After having been once used, the paper may be pressed, washed, and may then again be used, in form of pulp, for lining the filtering trough.

In the preliminary treatment of varnish, illuminating or lubricating oils, these are mixed with 2% of common salt dissolved in 15 to 20 per cent of hot or boiling water, then 1% to 1½% of hydrochloric acid diluted with 15% to 20% of water is added, and the mixture heated by a current of steam to about 120° F., which is passed through it in intervals of about 5 minutes. The oil is then allowed to separate. In some cases it is of great advantage to use permanganate or chlorate or bichromate of potassium in combination with the hydrochloric acid. For every 100 pounds of oil about $\frac{1}{10}$ pound of any of the above-named salts, and 1½ to 2 pounds of common salt, dissolved in a very small quantity of water heated to 120° F., is used. The oil is gradually mixed in a suitable vat with the salt solutions, at a temperature of 120°–130° F., and 2% to 3% of hydrochloric, or 1% to 1½% of sulphuric acid (properly diluted) are added under constant stirring, and very slowly (in the course of one hour).

The mixture is then diluted with 30% more of warm water and allowed to stand at rest. The separated oil is washed several times with pure water containing a little soda, and finally with steam.

No. 1,403.—**Tartrate of Iron and Potassium (and other scaled salts of Iron)** (M. V.).

There appears to be some ground for your statement that the formula given in the U. S. Pharm. does not yield as nice and soluble a product as it ought to. Theoretically it may be regarded as correct, but practically it could be, and no doubt will be improved. This subject was some time ago investigated by Mr. C. N. Lake (in a thesis presented to the School of Pharmacy of the University of Michigan), and we give here an abstract, taken from one of our exchanges, of the salient points of the paper:

I.—*Pyrophosphate and Phosphate of Iron.*

Much difficulty is encountered in making scales of pyrophosphate and phosphate of iron if the Pharmacopœial formulæ are followed. Although these formulæ appear to be correct in theory, in practice they fall far short of giving satisfaction. In making either of the phosphate scales, we want them of an apple-green color, readily soluble, and of such a consistence that the solution will scale easily. And these desired qualities are not secured by following the formulæ of the U. S. Pharmacopœia. [U. S. P. form. for ferri phosph. is to dissolve ferri cit. 5 in distilled water 10, and add phosphate of sodium 6. Evaporate and spread on glass. For pyrophosphate the formula is nearly similar, only pyrophosphate of sodium is used instead, in slightly less proportion.] If, in making pyrophosphate of iron, 10 parts of crystallized pyrophosphate of soda are used to 9 parts of citrate of iron, as directed by the Pharmacopœia, the resulting solution does not scale well, and the scales, such as they are,

dissolve scarcely at all. By using from 7.6 to 8 parts of crystallized pyrophosphate of soda to 9 parts of citrate of iron, these difficulties are entirely avoided, and a product, easily scaled, readily soluble, and of an apple-green color is obtained. It is best, in commencing this preparation, to add the smaller amount of pyrophosphate of soda first (7.6 parts), and then if the characteristic green tint is not secured after evaporating to the right consistence, small quantities of pyrophosphate of soda may be added until the proper color is reached. The same process for coloring can be used for phosphate of iron, and by so doing the trouble is averted which would be sure to follow if the Pharmacopœial formula is closely adhered to. The amount of crystallized phosphate of soda necessary for successful operation is found to be from 4 to 4½ parts to 5 parts of citrate of iron. If the Pharmacopœial amounts of pyrophosphate or phosphate of soda are used in making these scales, the product, besides being insoluble, turns white in scaling or on standing. This change in color is evidence that too much of either the phosphate or pyrophosphate has been used.

II.—*Tartrate of Iron and Ammonium.*

One of the U. S. Pharmacopœial formulæ which seems most in error is that for tartrate of iron and ammonium. [Sol. tersulph. iron 90, water 900, added to water 180 and aqu. ammoniæ 72. Strain, and mix with water 1,000. Wash away all sulphates. Mix acid. tart. 30 in water 130, neutralize with ammon. carb., and add another acid. tart. 30. While at 60° combine as much of the iron magma as will dissolve.] By the generally-accepted theory for the reaction when hydrate of iron is added to a half-neutralized solution of tartaric acid, we find that the parts of tartaric acid should be 58 instead of 60 for every 90 parts of solution of tersulphate of iron. But, besides this, it was found in a recent trial that with the 58 parts of tartaric acid, one-half of which was neutralized with ammonia, twice the amount of ferric hydrate was added, and still the last addition was readily dissolved. More could probably have been added, but the filtered solution was now evaporated, and scaled, giving a first-class product. An improvement on the Pharmacopœial method would be in adding half the powdered acid directly to the ferric hydrate, letting it dissolve what it would, and then to this add the solution of the remaining half of the acid neutralized with ammonia —the first part of the neutralization being effected with carbonate of ammonium, so as not to increase unnecessarily the amount of the solution; but, when near the end, aqua ammoniæ can be used to better advantage in bringing the solution to the neutral point.

No. 1,404.—**Testing Oil of Peppermint** (U. A.).

The presence of essential oils of the pine family, in oil of peppermint, may be ascertained by Heppe's test, by means of nitroprusside of copper. Two samples, one of the suspected, and one of perfectly pure oil, are heated to boiling, on a sand-bath, at one and the same time and for an equal period, with some nitroprusside of copper. The adulterated oil becomes lighter colored, and the copper compound retains its grayish-green color, while the pure oil becomes yellowish-brown; and the copper compound contained in it, dark-green or almost black. On pouring off the oil and adding alcohol to the salt, the difference in color between the two becomes still more noticeable. It is, however, impossible to tell by chemical tests what kind of "coniferous" oil has been added, since they all yield the same reaction.

No. 1,405.—**Beef Peptone** (Dr. W. S. W.).

Good beef peptone is composed mainly of the artificially (or naturally) digested albuminoids or protein substances, such as make up the largest portion of the substance of the animal or human body, and are absolutely essential for its sustenance and nourishment. Artificial peptones, or preparations which contain the albuminoids in a partially or entirely digested form, are important agents in many diseases, and are recognized as such by the medical profession.

There is no general standard for artificial peptones. Their value depends upon several properties, among which are 1st, its complete solubility, 2d, the proportion of moisture to solids, 3d, the percentage of nitrogen.

As we are unable to quote the composition of all the commercial peptones in the market, we will quote only that of Kemmerich, of which Prof. Fresenius has made an analysis. Kemmerich's peptone contains:

Dry substance	65.83
Moisture, given off at 120° in a current of hydrogen	34.17
	100.00
Total nitrogen	9.93%

100 parts of the beef peptone contain of inorganic constituents:

Potassium	2.8492
Sodium	0.7635
Lime	0.0338
Magnesia	0.1794
Oxide of iron	0.0105
Phosphoric acid	2.3393
Sulphuric acid	0.0078
Chlorine	0.6382
Silica and insoluble residue	0.0180
	6.8397
Deducting O for Cl	0.1440
Total	6.6957

The quantity of sulphur in organic composition (albuminoids) is 0.2466%.

According to Prof. J. König, there are soluble, of this peptone, in eighty-per-cent alcohol, 27.69 parts (consisting of 22.18% of organic and 5.51% of mineral matter); insoluble: 41.69 parts (consisting of 39.51% of organic and 2.18% of mineral matter).

No. 1,406—**Mending Mortars** (J.).

The following two communications to the *Chemist and Druggist* may give you a chance of accomplishing your object. We have not yet had an opportunity to try them:

Henry J. Deacon, of Beckenham, writes:

"Some years since, having a Wedgwood mortar broken in halves, I rubbed some calomel down with strong mucilage, and used this cement for my mortar, taking care to get the edges as close as possible together by means of a string around mortar just above rim at base.

"Mortar was put aside for some months. So thoroughly did this answer that we used the mortar indiscriminately for some year or two, and the last I heard of it was to the effect that it was as good as ever.

"It will be seen that one great advantage, beyond its endurance, is that of cement being in color like the article mended, more especially if very white gum Arabic is used."

A. Patterson, of Glasgow, writes on the same subject:

"Like most of my brethren in trade, I some time ago had the misfortune to have broken a good-sized Wedgewood mortar, and being unwilling to throw it out, it was laid aside to be cemented at some convenient season. When the convenient season arrived, the broken mortar was made the subject of a series of experiments, first with one of the recommended cements, then with another, and, lastly, with a strong shellac varnish, but none of these stood the test of regular counter-work, and one after another failed in realizing my hope that now the mortar was mended. Having read among my collection of recipes that equal parts of shellac and guttapercha melted, and applied hot, made a good lasting cement, I resolved to give this also a trial, and, joy of joys, my broken mortar became a whole one. This cement is, of course, a colored one, but for such a purpose as the one I used it for it is a good one. But, like many other good things, there is a *but* in its use. The but I found to be the great difficulty of melting and applying the melted mixture of shellac and guttapercha. It requires a strong heat, and when it is heated sufficiently it becomes so stiff that its application is a difficult matter. I became impressed that if this difficulty could be removed, a good strong cement would be the result. So, by the way of experiment, I took a small quantity of shellac, and covered it with methylated spirit, allowing it to stand till the shellac was dissolved. I now procured a small tin of guttapercha solution, which is used for mending boots and shoes, and mixed equal proportions of this solution with my solution of shellac. I had now a mixture which was easy of application with an ordinary camel-hair pencil, and possesses the good properties of the less-easily applied mixture of solids. The article to be cemented should be heated for short time before a fire, and the bottle containing the solution of shellac and guttapercha should be placed in warm water a few minutes before using."

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THE CHEMISTS' AND DRUGGISTS' DIARY, 1885.

IN addition to the usual matter, this annual contains a series of articles on practical dispensing, based upon Dr. Hager's treatise, and supplemented by several English writers. Either the diary or the advertisements relating to every branch of the trade would alone be a valuable addition to the desk of the British chemist.

THE PHYSICIANS' VISITING LIST for 1885. Thirty-fourth year of its publication. Philadelphia: P. Blakiston, Son & Co. $1.00.

THIS old and well-known pocketbook contains, in its latest form, an almanac, table of signs, Marshall Hall's ready method in asphyxia, poisons and antidotes, metric system of weights and measures, posological table (Oldberg's), table for calculating the period of utero-gestation, list of new remedies, Sylvester's method for artificial respiration, diagram of the chest, and blank leaves for all the records commonly kept by physicians.

THE PHYSICIAN'S POCKET DAY-BOOK. Designed by C. HENRI LEONARD, M.A., M.D. Detroit: The Illustrated Journal Co. Issued annually, $1.00.

THIS is one of the most ingenious, comprehensive, and economical pocket day-books for physicians' use with which we are acquainted. It has no text accompanying it, other than that which relates to its use as a record-book; has a broad flap, which avoids the necessity for a tuck or elastic band, and a pocket for cards or prescription blanks. The form for keeping accounts which it provides is well calculated to lessen the labor and enhance the accuracy of this portion of a doctor's duty.

VISIONS OF FANCY: A Poetical Work by N. M. BASKETT, M.D. St. Louis, Mo.: Commercial Printing Co., 1884. Pp. 109, 8vo.

THIS is a collection of forty-four short poems on a variety of subjects, but mainly of a pathetic nature, and, as a whole, of very creditable character.

DOCTRINES OF THE CIRCULATION: A History of Physiological Opinion and Discovery in Regard to the Circulation of the Blood. By J. C. DALTON, M.D., Professor Emeritus of Physiology in the College of Physicians and Surgeons, New York, and President of the College. Philadelphia: Henry C. Lea's Son & Co., 1884. Pp. 296, 8vo.

THE author traces the subject from the time of Aristotle to that of Leeuwenhoek and Ruysch; referring, in course, to the teachings of Praxagoras, the School of Alexandria, Galen, Mondini, Carpi, Vesalius, Servetus, Columbo, Cæsalpinus, Fabricius, and Harvey; the discussions awakened by Harvey's writings, and finally, to the visible proofs of the circulation. The extracts from ancient authors are numerous, but the whole are combined with the skill and elegance which have made Dr. Dalton's writings so popular. The narrative well illustrates the difficulties which beset the early studies of anatomy, and should be read by every physician who aims to be well informed in that branch of medical science.

DRUGS AND MEDICINES OF NORTH AMERICA (quarterly) by J. U. and C. G. LLOYD. Cincinnati, Ohio, October, 1884.

THE third part of this work comprises the text of *Ranunculus bulbosus* and relates also to *Caltha palustris* (Marsh Marigold) and *Hydrastis canadensis* (Golden Seal), which latter is continued throughout the fourth part, and forms the most interesting chapter thus far presented. It is beautifully illustrated and is as interesting as usual.

A supplement to this work is also published, containing omissions and new matter not embraced in portions already published, as well as queries in regard to matters to form part of subsequent numbers of the principal work.

ΧΗΜΕΙΑ τῶν οὔρων καὶ τῶν οὐρολίθων ἐν ἐφαρμόσει εἰς τὴν κλινικήν. Ὑπὸ Γεωργίου Ν. Ζαβιτσάνου. Ἐν Ἀθήναις, 1884.

[Chemistry of the Urine and of Urinary Calculi, in its Application to Practice, by GEORGE N. ZABITZANOS. Athens, 1884, pp. 232.]

A VERY handy and practical treatise on the subject, which labors only under the disadvantage of the stubbornness of the modern Greek against the introduction or assimilation of modern chemical terms, the larger proportion of which lose their intelligibility or perspicuity by forced translation. This is a serious matter for the Greek, as well as eastern nations in general; and, though most of the scholars read and write French, yet it prevents the general public or those unfamiliar with other European languages from getting a thorough insight into the relation existing between chemical substances, which is (in western languages) so largely assisted by a judiciously arranged nomenclature.

THE NEBRASKA DRUGGIST is the title of a new Monthly Journal of Pharmacy, Materia Medica and Business. Published by the Nebraska Druggist Co., of Omaha, of which J. H. Penfold is manager. Six and a half of its twenty-four pages are reserved for literary matters, the rest contain advertisements and price quotations. The subscription price, per year, is $1.00.

MEMORIA SULLA CURA DELLO SCOLLAMENTO DELLA RETINA (Iridectomia). (By DR. RAFFAELE CASTORANI. Naples, Italy, 1884, pp. 15.)

UN VIAJE A CEREBROPOLIS: Ensayo Humorístico de Dinamica Cerebral. (By DR. D. JUAN GINÉ Y PARTAGAS. Barcelona, Spain, 1884, pp. 124, sm. 8vo.)

DEL ESPIRITU DE LA CIRURGÍA CONTEMPORANEA. (By DR. D. JUAN GINÉ Y PARTAGAS. Barcelona, Spain, 1881, pp. 54, 8vo.)

(THE doctor having advised the administration of a five-per-cent solution of carbolic acid.)
"Here, boy! Take this and get a twenty-five-per-cent solution of carbolic acid. (*Aside.*) What is the use of being stingy in such a matter?"

WAITING FOR THE DEVELOPMENTS OF SCIENCE.
"Well, Missus Pease, I'll call agin nex' month."
"Laws, Doctah, no sooner nor then? Ain't he mighty sick?"
"Misses Pease, yo' husban' hes microbes, but dey ain't prackable yit. An' does yo' s'pose de philosephers can 'quire sich triumphs in a day? I tell yo' yo' has to wait till dey fin' out sumfin' of mo' prackable impautance 'fo' I can 'telegently puscribe fo' yo' husban'."—[*The doctor keeps himself well posted in all matters pertaining to his profession.*]

PROCEEDINGS of the Indiana Pharmaceutical Association. Indianapolis, Ind., 1884, pp. 91, c.

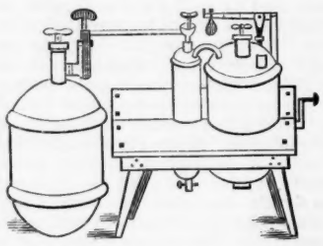
ANNALS OF SURGERY: A Monthly Journal Devoted to Surgical Science and Practice. Edited by L. S. PITCHER, M.D., of Brooklyn, N. Y., and C. B. KEITLY, F.R.C.S., of London, Eng. 1885, St. Louis and London. $5 per year.

MUMPS AS A CAUSE OF SUDDEN DEAFNESS. By LEARTUS CONNER, A.M., M.D., of Detroit, Mich. Pp. 9, 8vo, Reprint from *Amer. Jour. of the Med. Sci.*, October, 1884.

PERSONAL.

James T. Lukens, the oldest manufacturer of carbonated water in fountains in this country, and founder of the house of C. T. Lippincott & Co., of Philadelphia, died on the 30th of Nov. last.

On the 23d of April, 1832, Mr. Lukens formed a partnership with P. C. Laning, for the purpose of manufacturing soda (or mineral water as it was then called). He began business at the corner of Eighth and Mackinaw Streets, and furnished the first fountain, on the 28th of April (13 gallon at $2.00) to Edward Needles, an old and well-known druggist. On the books of the earlier years of the business are the names of such druggists as Edward Needles, Dilwyn Parrish, Joseph Turnpenny, P. C. Oliver, Dr. David Jayne, Henry C. Blair, and later Wm. B. Webb and the well-known confectioner S. F. Whitman. In those days the gas was generated in a wooden tub, and after passing into a gasometer was pumped into the fountains, by hand. The fountains (copper, egg shape, without handles or feet) were agitated on a small cradle. In 1834, Mr. Laning sold his interest to Mr. Lukens, who carried on the business alone until 1838, when Mr. John Lippincott bought a half interest. This partnership lasted until 1843, when Mr. Lippincott bought out Mr. Lukens. John Lippincott retired in 1865, selling out to Chas. Lippincott, the present head of the house.



Mr. P. C. Laning was the original inventor of the apparatus for generating gas under pressure for charging portable fountains, or what is better known as the American system for aërating soda water. The generator was invented between 1832 and 1834.

John Frey, Superintendent of the General Drug Department Bellevue Hospital, died at the age of seventy-seven, at his home in the hospital. He has been sick to a greater or less extent for more than a year. Repeated colds developed into chronic bronchitis, which with heart complications that lately appeared were the immediate cause of death.

Mr. Frey was born in London in 1807. His father was a well-known Israelite, who renounced the Jewish faith, and was the first of his race to unite with the Established Church of England. Mr. Frey came to New York in 1814 with the other members of his family and was first apprenticed to learn the printer's trade. He became dissatisfied with this vocation, and in 1827 was apprenticed to an apothecary in Sullivan st., which was then in the outskirts of the city. He afterwards acquired an interest in the business and remained there until 1849, when by the advice and assistance of Dr. Valentine Mott he was appointed to the position which he held until his death. Bellevue Hospital at that time was small and was a part of the County Poor House. Mr. Frey performed his duties in such a creditable manner that when in 1867 the Drug Department of Bellevue was enlarged so as to furnish the medicines for the seventeen public institutions, as well as for all the public dispensaries, he was retained in charge and received the commendation of the Commissioners of Charities and Correction, for his faithful stewardship. Mr. Frey was a trustee of the College of Pharmacy, an officer of the Microscopical Society, member of the American Institute, of Olive Branch Lodge of Odd Fellows No. 31, and of Palestine Encampment, I. O. O. F.